The RUBBER AGE

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LATE NEWS of the Industry

Advisory Committee is Formed To Help Solve the Industry's Problems

George T. Bishop, President of Continental Shares, Inc., Heads Group of Five Leading Executives in Effort to Alleviate the Industry's Ills—To Act in Purely Advisory Capacity.

HEADED by George T. Bishop, president of Continental Shares, Inc., a committee of five prominent business executives interested in the rubber industry, has been formed to serve as advisors to the industry as a whole and attempt to work out some of its problems.

The formation of this new group is said to be the result of a dinner held two months ago and reported in THE RUBBER AGE of April 25, 1932, which was attended by the heads of practically all the leading rubber companies in the country and at which Mr. Bishop proposed a plan to set up some dictatorship in the industry which would help solve the industry's present difficulties.

In addition to Mr. Bishop, Harris Creech, president of the Cleveland Trust Company, and a director of Firestone Tire & Rubber Company; Irenee du Pont, vice chairman of E. I. du Pont de Nemours & Company, representing the du Pont interests in the United States Rubber Company; C. S. McCain, chairman of the board of Chase National Bank, and Robert L. Clarkson, president of Chase Securities, representinig the Chase banking interests as bankers for a number of the rubber companies, have been appointed to serve on a committee with Mr. Bishop.

Several meetings of the committee have already been held and some of the major problems of the industry discussed.

The committee with Mr. Bishop is expected to serve in a cooperative and advisory capacity with the industry, rather than adopt a dictatorial policy.

According to announcements from Mr. Bishop, the first recommendations of the new committee will be forthcoming shortly. They will not be made public, however, and will be handed to the executives of the industry merely as suggestions.

"The first thing we will take up will be these free tube offers, free service, free this and free that," Mr. Bishop said. "They are unethical and ought to be done away with at once. Later we will get around to other things that we believe should be corrected to help the situation in the rubber business, which certainly is deplorable."

Asked if mail order price cutting and competition figured in the committee prospective study, Mr. Bishop said:

"Yes, we have been to see the mail order people already and have talked the situation over with them. I think we will find them cooperating in whatever we do."

Officials of every large rubber company have been approached by the committee, Bishop said, but he did not believe it would be wise to name them.

"We expect to call on the heads of smaller units of the rubber business right away," Bishop said. "Some of these smaller factories are mighty important factors in the busi-

Scanning the Headlines

THE LONG-RUMORED move for a dictatorship in the industry takes the form of a committee headed by George T. Bishop . . . RUBBER CONSUMPTION in June shows big spurt in production of tires . . . TIRE inventories in May are lower with shipments and output increased . . . DEPARTMENT OF COMMERCE issues statement indictating that world consumption might overtake production of crude rubber . . . REMOVAL OF FISK receivership urged by Chicopee Falls group . . . RUTHERFORD calls for more unity of action within the industry to bring back prosperity . . . LEGISLATIVE committee of the Rubber Manufacturers Association makes report on new Excise Tax regulations . . . QUESTION of tire prices still worries the industry . . . SEARS ROEBUCK reported to favor adding tax to prices.

ness and we will see them before anything is done. What we want to do is get the slant of every representative of every company on the situation before we do anything."

In the formal statement which Mr. Bishop gave out in New York he said: "The committee plans to investigate various trade practices and to consider the elimination of those which are unsound and legally may be abolished. It will act in a purely advisory capacity without power and feels that there may be a number of subjects upon which it can make helpful suggestion."

GEORGE T. BISHOP

President of Continental Shares, Inc., and Chairman of the New Rubber Advisory Committee

Shipments and Production of Tires During May Increase With Inventories Lower

SHIPMENTS of pneumatic casings for the month of May amounted to 4,258,116 casings, an increase of 15.2 per cent over April this year, but were 21.4 per cent below May, 1931, according to statistics released by the Rubber Manufacturers' Association.

The Association reports production of pneumatic casings for May to be 3,820,063 casings, an increase of 8.6 per cent over April this year but 32.7 per cent below May, 1931. Pneumatic casings on hand May 31 amounted to 9,378,691 units, a decrease of 4.7 per cent under April 30 and 9.1 per cent below May 31, 1931.

Rubber Consumption During June Makes Big Jump, But Stocks Increase

CONSUMPTION of crude rubber by manufacturers in the United States for the month of June amounted to 39,116 long tons as compared with 29,197 long tons for May, 1932, and represents an increase of 34 per cent. This is the highest consumption for any one month since May, 1930, according to statistics released by the Rubber Manufacturers' Association.

The Association also reports imports of crude rubber for the month of June to be 41,394 long tons, an increase of 28.5 per cent over May, 1932, but 9.6 per cent below June a year ago. Total domestic stocks of crude rubber on hand June 30 are estimated at 345,702 long tons, which compares with May 31 stocks of 346,231. June stocks show practically no change as compared with May of this year, but were 53.3 per cent above the stocks of June 30, 1931.

The participants in the statistical compilation report 43,079 long tons of crude rubber afloat for the United States ports on June 30. This compares with 50,453 long tons afloat on May 31, 1932, and 52,066 long tons afloat on June 30, 1931.

Chicopee Falls Group Moves to End Receivership at Fisk Rubber Co.

A NEW independent protective committee, sponsored by the Chamber of Commerce of the city of Chicopee Falls, Mass., has been recently formed in the interests of security holders of the Fisk Rubber Company.

The purpose of this committee is to seek at once a reorganization of the company and thus lift the receivership under which the company is now operating. The entire cost of the committee is borne by the Chamber of Commerce which has raised funds through public subscriptions.

Nelson B. Carter, president of the Chicopee Savings Bank is chairman of the committee, the personnel of which is as follows: J. B. Knight, treasurer of the Chicopee Falls Savings Bank; Charles W. Bray, commissioner for Hampden County; Edward T. McDonnel, retired; Samuel Wiener, merchant, and Preston Pond, treasurer of the Cabot Trust Company of Chicopee.

The Cabot Trust Company of Chicopee is named depositary. Holders of the 8 per cent first mortgage bonds and the 5½% debenture notes are requested by the committee to deposit their securities promptly. Under the committee agreement, depositors may withdraw securities at any time without expense.

The committee calls attention to the fact that the company has been operating under the heavy burden and expense of receivership for the last 18 months and that it is of the opinion receivership fees and expense alone will cost the security holders to date a substantial portion of their equity.

In the event the company is liquidated, the large investment in the properties and the value of the good will of the company as a going concern will be practically a total loss, the committee asserts. Therefore, it says, the prompt adoption of a suitable reorganization plan is the only way security holders and creditors can recover the maximum from their investment and recoup their present losses.

Conditions in the Tire Industry Remain Unchanged, Says Bank Survey

BASIC conditions within the rubber industry have remained unchanged during the last few months in spite of a spurt in sales in May and June, anticipatory of the imposition of the new Excise Tax Act, according to a survey made recently by the Fourth Federal Reserve Bank of Cleveland, O., and published in their monthly *Review*.

The April 1 tire dealers' stocks census, made by the Department of Commerce, declares the bank publication, found the tire inventories of independent dealers at unusually low levels but this condition apparently has been corrected to a considerable degree as dealers preferred to stock up heavily before the tax became effective and thus benefit temporarily from the increase since the tax is to be passed on to the consumer through higher prices.

The *Review* continues:

"Most tire manufacturers announced price increases of 11 per cent on tires and 15 per cent on tubes, effective June 21, to take care of the new federal taxes amounting to four cents a pound on tubes and 2¼ cents on tires.

"The advances are somewhat larger than the increased costs resulting from the taxes, thus affording a small increase in income to the tire companies themselves. This is the first upward movement in recent years and marks a

reversal of the successive slashes which have reduced tire prices to the lowest levels in history.

"The increased dealer buying has been so marked that, in addition to drawing heavily on stocks of finished tires, it necessitated an expansion in factory operations. The upturn, however, was regarded as purely temporary since the sharp increase in shipments will build up dealer stocks to unusually high proportions in relation to current demand.

"Latest complete monthly figures cover April operations which show replacement tire sales up about 25 per cent after allowing for seasonal variations. Shipments of tires and tubes exceeded output, the former for the first time since December, 1931, and the latter for the first time since January.

"In the four months ended May 1 output was down 16 per cent from the same period of 1931. April shipments were up 25 per cent from March, but were 25 per cent below April, 1931. There were 7,877,000 casings in hands of manufacturers on May 1, as against 8,025,000 on the same date last year.

"Employment in May at factories in this district declined one per cent from April in contrast with a five-year average increase of two per cent. Compared with May, 1931, employment in the latest period at 24 concerns was down eight per cent."

Department of Commerce Finds Rubber Production Dropping Behind Consumption

RESTORATION of balance between the world rubber supply and demand appears possible toward the close of the year, according to the Department of Commerce. A decline of 36 per cent in production of Ceylon rubber estates in comparison with May, 1931, is indicated by preliminary statistics issued by the Rubber Growers' Association, London, it was pointed out. The output of Japanese estates declined 33 per cent, while the output in Borneo was down 32 per cent and that for India fell 93 per cent from the figure for May of last year. Against this trend, however, estates in Malaya and Sumatra have made new high records of production monthly, thus far, in 1932.

Absorption of rubber in countries outside the United States is running well ahead of absorption in past years, but absorption must be distinguished from consumption. The rubber absorbed can go into stocks or into refining and manufacturing plants, and no information is at hand to show just what the tendency is abroad. While it may be that of the unusually low rubber price to lay in stocks against a future price increase, there are factors which make it appear that absorption might continue in the face of such a rise.

Should the present high rate of absorption be maintained for the balance of the year, and should the tendency revealed by preliminary May statistics toward reduction of output in the East likewise be maintained, the restoration of a balance between rubber supply and demand near the close of the year would seem not at all impossible.

No immediate prospects for a sizeable increase in rubber consumption through new uses are in sight, but it is admitted that there are several possibilities for utilizing appreciable amounts of rubber, as in the so-called airplane tires for automobiles, pneumatic tires for railway equipment, in road building, in sponge rubber for upholstery purposes, and in latex products for a variety of purposes, many in connection with fabrics and textiles manufacture.

If the new doughnut tires for automobiles were adopted as readily as the balloon tires a few years ago, there would undoubtedly be at least a temporary gain in rubber consumption.

Rutherford Indicts Industry for Lack of Proper Sales Management

IN AN interview given out recently and published in the daily press, W. O. Rutherford, president of the Pennsylvania Rubber Company, criticizes the sales methods as practiced by the industry during the past and calls for unity of action to restore the industry to profitable operation. His statement, in part, was as follows:

"Barring conditions shortly after the war when high commodity prices tumbled to very low levels, the rubber industry enjoyed both success and prosperity. In 1928 there came a change. Control of the thinking of the industry passed to minds inexperienced in the science of sales and distribution. This thinking crystallized in a policy of vast capital expansion, enlargement of old properties, building of many new factories throughout the country and an increase in machine capacities to approximately 120,000,000 tires. In 1929, the peak year, tire sales reached 78,000,000 units, far below the machine capacities that had been installed at great cost.

"We are all aware of what has transpired since. Each succeeding year has shown a shrinkage in tire sales, and I don't believe the volume for 1932 will exceed 45,000,000 tires, and it may be less. Concurrently, the industry's income has decreased to the point where we find tire prices 60 per cent below those prevalent in 1926. So a present-day inventory of the industry's physical picture finds 2½ times the tire producing capacity needed for current demand, greatly reduced income from output, surpluses wiped out, working capital depleted and morale at a low ebb.

"Further, as thought bent on self-destruction, we find companies concentrating their sales energies on second, third and fourth line tires . . . low income-producing merchandise . . . rather than on top grades. This policy is in substance one of nullification. For it means that manufacturers are deliberately turning their backs on years of constructive effort and millions of dollars invested in the creation of finer tire quality and the education of the public to its usage. How they can hope to escape a penalty for such thinking it is difficult to see.

"And when we analyze the disturbing elements in the channels of distribution we find additional causes for grave concern. Here the new leadership wrought a revolution.

"Men who think in terms of mass production likewise think in terms of mass selling. Large distributing organizations such as mail order houses, chain systems, and oil companies, were encouraged to engage in the retail tire business without regard to the legitimate source of public supply, which consisted of some 70,000 independent tire merchants. They have provided these large buying groups with quality equal to their own brands on a basis of factory cost. They have made it well nigh impossible for their own dealers to compete with these organizations on anything resembling an equal basis.

"In effect, management sold out millions invested in scientific research and development, advertising, sales administration and sales initiative for private-brand volume. Unless the industry awakens and corrects its mistakes many companies will degenerate into manufacturers of private brands.

"They will find the tide of competition and price so powerful against their own product, and their dealer organizations drying up so rapidly, that the cost of merchandising will be prohibitive.

"It must be obvious to anyone that the tire industry has fallen on evil times. It must mend its way or face catastrophe. It has set up competitive forces far more aggressive and efficient than its own. It has surrendered its birthright. It has instituted practices that have bred deep distrust."

(Other news of the industry will be found on Pages 325-330)

Excise Tax Regulations

Report of Legislative Committee of Rubber Manufacturers Association—Tax to be Levied on Basis of Average Weights

THE Legislative and Tax Committee of the Rubber Manufacturers' Association have announced their report on the application of the 1932 Excise Tax Law. A resumé of the principal phases of the report is given below. The committee has also secured the authorization of the Treasury Department for the industry to use, as a basis for computing the tax, a standard table of average weights for various sizes of tires and tubes. This table has been sent to all manufacturers in the industry for their guidance.

The committee spent several weeks in conference with members of the industry and officials of the Treasury Department and compiled considerable information. The work of the committee has been outstanding in its unselfish devotion to the purpose of securing the most liberal interpretation of the tax law in the interests of the industry.

It is brought out in the report that it is purely tentative, in principle, and that while the Department's official ruling will undoubtedly follow the substance of the report, in detail the rulings may vary to some extent.

Paraphrase of the Report

I.

The Committee sought for some clarification in the matter of parts or accessories (Article 41 of Regulations 46). In this connection, the Department differentiates between a raw material which, with some fabrication, will become an accessory or part, and an accessory or part as such. For instance, matting sold in long lengths and requiring fitting and cutting to fit a particular make of automobile or a particular automobile, is considered a raw material. The matting when cut and fitted is a taxable accessory. Repair materials, patches, gum stock, polishes, etc., are not parts or accessories. As a matter of law it appears possible that any part or accessory to a tire and which has no applicability to a motor vehicle, except as a part or accessory to a tire, may be excluded from the tax, by reason of the wording of the law itself.

II.

The definition of "tires" was very thoroughly considered. The Department acceded to the contention that extruded or molded rubber in bulk lengths and requiring cutting and bending and fastening to make a hoop, is not a tire until so cut. Tiring for toys is excluded unless the toys are capable of carrying a child. In other words, the test is whether the vehicle is capable of being used as a vehicle or is only a replica. Thus kiddy car tires and tricycle tires are taxable. Castors are not taxable tires. The miniature tires on advertising novelties, such as ashtrays, are not taxable as tires.

III.

Rubber-soled shoes will not be held taxable as sporting goods unless they are specially adapted to a sport and are held out as sold for that sport use only. It is suggested that footwear manufacturers send catalogues or present specimens to the Association for specific rulings if they are in doubt regarding the tax status of particular products.

IV.

Tires cut up into sections for advertising or research or demonstration purposes, tires utilized on the resiliometer or other testing apparatus in a factory laboratory and tires run on test cars where no revenue is derived from their use and they carry no useful load of persons or freight, will not be considered as a taxable use by the manufacturer.

V.

What, if any, relief to the tire manufacturer may be obtained by reason of replacements and adjustments under warranties, remains to be seen. The Department finds considerable difficulty in making any allowance, even though a new tire is furnished to the customer at a very much reduced charge, by reason of the fact that the tax is on a weight basis. The Department is disposed to give such relief as it can and has taken this point under advisement. Where the sale of a tire is rescinded, credit may be taken for the tax.

VI.

At the insistence of the tire manufacturing industry as a whole, the Department will accede to the request to use average weights upon which the tax may be computed. We consider the accomplishment of this of great benefit to the industry as a whole. Tentatively, the average weights, as computed by the Association from data furnished by individual tire manufacturers, may be used.

VII.

Mileage contracts are considered as either leases or uses by the manufacturer (this latter view preferred by the Department). In either event, the tax is payable in full when possession of the tire is delivered to the mileage account.

VIII.

If a rubber manufacturer makes only taxable articles and uses lubricating oil in his compound and gasoline or other solvents in his product, he may buy these commodities on exemption certificates. If such manufacturer makes both taxable and non-taxable articles, the Department's view is that he should buy tax-paid oils and gasoline and take credit or secure refund for the tax on such portions as he is able to prove have been used in the manufacture of taxable articles. The Department is firmly opposed to permitting a manufacturer of taxable articles to buy tax-free or to secure refund of tax on lubricating oil used to lubricate the machinery manufacturing such taxable articles.

IX.

The Department sees no way of changing Article 17 of Regulations 46, respecting sales to states or municipalities.

X.

The Department will insist that returns of manufacturer's excise tax shall be made at the principal place of business of the corporation. Consequently, one return for affiliated companies will not be permitted. The Department will, however, consider as an individual case any circumstances which are submitted to it.

XI.

The Department concurred in the Legislative Committee's view that where, in an emergency case and to provide for a delivery at a certain point a manufacturer borrowed a tire from a dealer, such manufacturer might return another tire of the same kind to the dealer without *that* transaction being taxable. To guard against abuse of this emergency privilege, it must be understood that the dealer derives no monetary gain from this transaction.

XII.

Car manufacturers will require from their tire suppliers a breakdown of base band or rim price and the price of the rubber in cases of sales of solid, cushion and industrial tires. The price of the "rubber portions" will be determined by subtracting from the sales price of the whole tire (including steel base band) the open market price of base bands as such.

A Survey of CHINA'S *Infant Rubber Industry*

Internal Political Troubles Have Severely Hurt the Industry But Production in Footwear is Growing—Japan Supplies Most of the Raw Materials, Chemicals and Machinery

CHINA'S flourishing infant rubber manufacturing industry suffered a severe blow from the recent Sino-Japanese hostilities at Shanghai, according to reports to the Department of Commerce. Out of a total of 48 factories (estimated by the Bank of China research department) in Shanghai at the end of 1931, 33 were located in the affected regions, and it is conservatively believed that possibly 12 factories have been completely ruined. Only five plants have to date resumed operations, and these are only partially working.

A few rubber soles imported into Canton from Singapore in 1911 is said to have been the precursor of the present Chinese rubber manufacturing industry. The first development came in Canton when oversea Chinese established the Kwangtung Brothers Rubber Manufacturing Company in 1917. Within the next two years several other concerns had sprung into existence, including the Yi Yi Rubber Manufacturing Company, the Chu Kwang Rubber Company, the Canton Industrial Rubber Manufacturing Company, and the Chung Hwa Rubber Company, and by 1921 about 20 companies were producing a total monthly output of 600,000 pairs of rubber shoes. Over-production, coupled with inevitable price cutting, following a rise in the price of raw material, forced a number of concerns out of business during the years 1924, 1925, and 1926. In February, 1926, only a few companies were operating. Political disturbances and heavy taxes in 1926 subjected the industry to a further decline, but an upward trend was noted in 1927. From that year the Canton industry was augmented by the establishment of plants at Hong Kong, Foochow, Shanghai, Chefoo, and Weihaiwei. By October, 1931, 15 factories at Canton alone were reported to be operating wiith an annual turnover of 3,119,000 Chinese dollars. Production had expanded from 90,000 pairs in 1928 to 3,000,000 pairs, while the industry at Shanghai had far surpassed that of South China.

Shanghai Has 48 Factories

Although statements as to the size of the rubber industry in Shanghai vary, that of the research department of the Bank of China is representative, and in one of the bank's official publications it is stated that at the close of 1931 there were 48 rubber factories, 26 of which had been established during that year. The aggregate volume of business of this industry rose from 5,000,000 Chinese dollars in 1930 to between 9,000,000 and 10,000,000 dollars in 1931, and would have been even greater had not the country been faced with such catastrophes as the Yangtze River floods, the Manchurian invasions, and resultant disturbances.

The extent to which the rubber manufacturing industry has grown in China is reflected in the importation of crude rubber. Imports rose from 1,972 piculs (1 picul equals 133⅓ pounds) valued at 54,367 haikwan taels in 1921 to 19,178 piculs valued at 734,548 haikwan taels in 1929. (The haikwan tael in 1921 equaled $0.76; in 1929, $0.64). The trade dropped off by 50 per cent in 1930. Preliminary customs figures for 1931 indicate that crude rubber imports during that year aggregated 55,000 piculs.

Footwear is the Principal Product

The industry is practically confined to the production of rubber overshoes and canvas rubber-soled shoes. A few factories (principally at Canton) are manufacturing rubber soles, heels, and rubber rolls for machinery, while one plant at Shanghai is engaged in the manufacture of pneumatic rickshaw and bicycle tires. There are no official production figures.

An idea of the price competition given imported lines may be gained from the fact that in Hong Kong Chinese-made canvas shoes with crepe rubber soles retail as low as 65 cents local currency, or 16 cents in gold, per pair. The highest priced shoe made sells for $2.50 local currency, or 65 cents gold. Similarly, the low prices quoted for Chinese-made rubber footwear in other China markets undersells most foreign products.

China is not a producer of rubber, although some effort to establish a rubber-growing industry has been experimented with in the island of Hainan, off the coast of Kwangtung Province. 70,000 trees were planted in 1910. The quality is said to be good but the method of preparation faulty. Such rubber as has been produced from this source has usually been exported to the Singapore market.

The Shanghai factories are using almost entirely "Singapore smoked sheets," only two concerns using "crepe sheets." A certain amount of old scrap rubber has been imported, which is utilized for many other things than rubber manufacturing. Old rubber tires are cut up in Manchuria and North China and used for rubber soles; in South China they are placed over the iron-tired vehicles to protect the new city streets; while in the Chefoo district such scrap rubber is reclaimed and used in the manufacture of the cheap coolie type of shoe.

Most purchases have in the past been made through Japanese trading companies. One Chinese manufacturer claimed that he could secure crude rubber cheaper through a Japanese agent from Japan than direct from Singapore. The explanation given was that empty Japanese ships from the South Seas were willing to carry rubber back to Japan at a very low rate, while the direct freight rates of independent steamship lines from the South Seas to Shanghai were very high.

Only the simplest type of machinery has so far been introduced into the industry, most of which is of Japanese origin.

For the most part, plant equipment consists of several small two-cylinder mixers, where the smoked sheets and compounds are gradually mixed to the consistency desired. There are no refining mills, nor calenders. The compounded mass goes from the "mixer" to an engraving roller. This latter machine is a simple two-cylinder affair, with the upper or outsole engraving on one of the rollers. The rubber sheets are drawn off from the engraver by hand by two workers, who clip the strip when it is about 6 or 8 feet long, and then lay it on a table. There are no lining or friction cloth calenders. Lining cloth is usually dabbed by hand and hung over bamboo poles or racks to dry. One or two crude wooden machines for drawing lining cloth through a batch of rubber cement were found in one plant. These machines were operated entirely by hand. This was known in this particular factory as a "spreading machine." This factory was also experimenting with three steam drying tables, which had been locally manufactured.

All cutting is done by hand for fabrics, linings, friction cloth, rag insole stock, rubber uppers and outsoles for both rubber overshoes and canvas shoes with rubber soles. Patterns used are most elementary. All "skiving" and "bevelling" of outsoles is done by hand.

Industry Expected to Grow

Vulcanizers of local manufacture, with second-hand boilers, usually serve the purpose for curing. Canvas shoe plants are gradually equipping themselves with power sewing machines, but the introduction of this type of machinery is slow, owing to the prevalence of hiring through a labor contractor, a group of laborers who bring in their own treadle machines. Of six large establishments operating at Shanghai in conjunction with five subsidiary plants, a total of 114 power sewing machiines was owned, while 121 treadle machines (American and German make) belonging to the laborers were in use. A few simple eyeleting machines are utilized. The larger plants are using electric power for operating their machinery. Small electric motors of various types, of both American and German manufacture, are used.

The rubber industry gives promise of being able to develop quite rapidly in China, and it would appear that American rubber machinery of the more simple types could be sold in China if properly introduced. Chinese rubber-goods manufacturers are at this time particularly receptive to new sources of supply.

Rubber heel and shoe machinery has been supplied by Chinese, Japanese, and German manufacturers.

Japan formerly controlled the Shanghai rubber industry's demand for chemicals, chiefly because of China's dependence upon Japanese chemists in this industry. Shortly after the Manchurian occupation occurred, a move was made to replace the Japanese chemists as rapidly as possible, and Chinese interests have set about to establish their own chemical works. Three companies are now reported to be manufacturing calcium carbonate in Shanghai.

Japanese chemicals have been purchased in former years because of their cheapness in price. Lithopone, red lead, litharge, and similar chemicals are now being offered by German and British chemical concerns, and the United States controls the carbon black market. The business in sublimed sulphur has always gone to Japan, partly, it is said, because of a working agreement between the big sulphur interests, whereby Japan would handle the Asiatic territory. American interests in Shanghai have recently been endeavoring to secure some of this business for American sulphur, although American suppliers apparently have not been particularly interested in this field because purchases have been restricted to small lots. The lack of sufficient marketing organizations making it possible for stocks of United States chemicals to be carried locally is a hindrance to the American trade. A customs regulation restricts the sulphur trade to small-lot purchases.

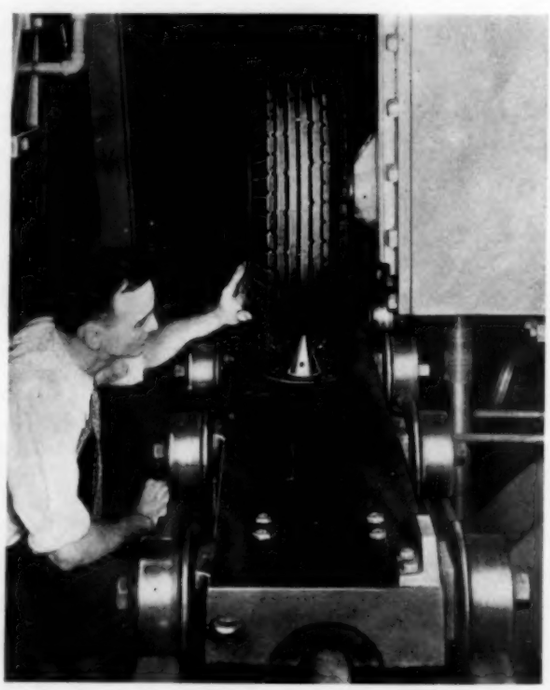
The South China rubber industry has drawn its chemicals from Japan, Germany, and the United Kingdom.

Stocking cloth and other textiles used in making rubber overshoes are entirely of Chinese manufacture, the desire being to patronize China's cotton spinning and weaving industry as much as to purchase the cheapest qualities. Canvas duck has been almost entirely imported from Japan, American materials having little chance to compete because of price considerations. A small amount of American canvas is used by Shanghai and Hong Kong plants for better quality shoes.

New Tire Testing Machine

A NEW type of rupture testing machine which subjects a tire to impact similar to that encountered on the road has recently been designed by the United States Rubber Company, and installed in its tire development laboratory.

Through the use of this machine engineers can discover how severe a blow, such as might be produced by a sharp stone, a tire will absorb before the casing breaks. Operation of the machine is simple. A tire mounted and properly inflated for a definite load is attached to a vertical column of the machine so that the wheel may revolve freely. A steel point is fixed to a removable horizontal



Rupture Testing Machine of U. S. Rubber Co.

table, corresponding to a roadway. The tire is loaded under pressure equal to a car's weight on the table and the table is made to run under it so that the tire with traction applied rolls over the steel point.

At the spot where the tire strikes the steel point the tire is marked to show the height of the point. The points used in the test vary from 2 to 4⅛ inches in height with a variation of ⅛ inch between each. The machine, striking the tire at a different place each time, is operated until a steel point sufficiently long to rupture the casing has been used.

Rubber and Composition Rollers

A Discussion of the Advantages and Disadvantages of Each Type

AN interesting discussion on the merits of rubber and composition rollers has been taking place in recent issues of *The American Pressman,* a well-known monthly technical journal devoted to pressmen, presswork and pressroom management. The editor of that publication, Thomas E. Dunwody, answered in the February, 1932, issue an inquiry from the publisher of a small newspaper who wanted to know what kind of rollers are being used in the latest styles of low unit type double width presses. In his answer, the editor evidently did not satisfy the advocates of either the rubber or composition rollers, with the result that many readers wrote in to the publication, expressing their sentiments on what the correct answer should have been.

In the June, 1932, issue of *The American Pressman,* Editor Dunwody replies to his critics and amplifies his original answer. The details of this matter are of interest to manufacturers of rubber rollers and accordingly a part of the discussion is reprinted herewith:

It appears that some interested in the sale of rubber rollers think that the answer was an injustice to these rollers and, furthermore, one very competent newspaper pressroom foreman thought, too, that we should have gone stronger in extolling the merits of rubber rollers in newspaper printing.

Some well informed men to whose attention this article was called, men who certainly are unbiased, thought it clear enough and did not consider that the average reader would misinterpret it. Obviously, more could have been said on the subject, but space did not permit of a minute discussion of so large a subject.

The inquiry came from a small daily newspaper and the one making it wanted to know what kind of rollers are being used in the latest styles of low unit type double width presses. We could have answered this question better. We could have said that today both rubber and non-meltable composition rollers are being used on this type of press. This type of machine doesn't call for any particular kind of roller. Either composition or rubber can be used. Both are being used. We quote from the answer given so that in the first place our readers can see whether there has been any unfair discrimination and also in order that we might endeavor to qualify any statement made or withdraw it if that be necessary:

Composition Rollers Affected by Temperature

"In other words, the same condition exists as on other machines in so far as rollers are concerned, and it is to a great extent a matter of opinion as to what kind of rollers are best.

"First, we have the regular composition rollers, and there are those who cling to the custom of using these regardless of what else is offered. There is no question about their superiority in some respects but, as everyone knows, the straight composition roller is very susceptible to atmospheric conditions and will not hold for a length of time its natural working qualities. Then, the matter of cost comes in, too.

"The other type of roller is an all-season special composition roller that in some cases is practically non-meltable. This type of roller, as you know, has gained favor in many circles and is being used for both distributor and form roller.

Rubber Rollers Outlast Composition Type

"Then there is the rubber roller. Some pressmen do not care for rubber rollers for various reasons, while others find them most satisfactory in the long run. The printing qualities of rubber rollers are positively not up to the printing qualities of a well made properly conditioned composition roller, but they do give perhaps more consistent performance. For this reason they are favored by a fairly great number of pressmen. The initial cost of these rollers is higher than that of the composition rollers but, of course, they outlast the composition rollers and are just as economical in the long run. Manufacturers will say that they are more economical, and we presume they are undoubtedly correct in this statement.

"The direct answer to your question, though, is that any type of roller that will work on the old style presses will work on the new type of machines."

Those who favor rubber rollers can, of course, find something wrong with the paragraphs that we have just quoted and, on the other hand, those who favor composition rollers may take exception to some of the remarks. Still, we contend that there is no indictment against either kind of roller in the above paragraphs and that fundamentally the arguments are sound. The contentions, though, are not explanatory enough.

For instance, it is stated that the properly made and properly conditioned composition roller is superior as an ink distributing and transferring medium to any other roller. This, to our minds, still holds true if we take the printing industry as a whole, but it doesn't necessarily indicate that we would recommend regular composition rollers in preference to others in all kinds of printing. No one with a knowledge of conditions in our industry would do so today because it is such a well established fact that for certain work other rollers are more suitable. In some cases it might be that the nature of the work doesn't require the fine qualities possessed by a soft pliable composition roller, for while these qualifications are necessary for fine halftone and color process printing they are not of paramount importance in the printing of newspapers nor in the printing of a certain grade of commercial work.

The day of the straight composition roller in newspaper printing is over. We presume that this is quite generally understood and the reasons for it are that these rollers are so susceptible to atmospheric conditions that they will not retain these qualifications unless great care is given them. Then, too, they cannot stand the friction of high speed

newspaper printing. It is true that there is no printers' roller that will remain the same today and throughout the life of the roller, but none is so susceptible to change as the straight composition roller, yet, it will best distribute and transfer most kinds of ink a little bit better than any other rollers as long as it does retain its inherent qualities. This is why straight composition rollers have lasted so long and withstood so many attempts to eliminate them entirely, these attempts naturally being brought on by reason of the fact that straight composition rollers are so ever-changing in their working qualities and lately by the fact that they cannot be made to withstand the terrific speeds of modern newspaper presses.

Yet, these rollers are still being used on small newspapers to advantage because of their low cost and because on these papers the strain is not so great.

The newspaper industry is geared up for high speed. The large metropolitan daily must give the public "red hot" news. Regardless of quality there can be no delay in getting news to the public and naturally high speed presses are necessary and on these presses must be used rollers that will not heat up or melt under press speeds of thirty to fifty thousand an hour. In order to meet these demands an overwhelming majority of large newspaper pressrooms use rubber rollers. There are those who believe that these rollers possess better printing qualities than even the best composition rollers, but that is very questionable. It has never satisfactorily been demonstrated for the modern non-meltable composition rollers are still competing. The National Association of Printers' Roller Manufacturers in a copyrighted book just issued states, "non-meltable composition rollers will not run down at any press speed. They can be made very soft or to any degree of firmness as preferred by the pressman. They are not affected by changes in the atmosphere and the diameter of the rollers will not vary to such an extent that the roller adjustments in the press will not take care of these variations. The first cost of these rollers is their only cost. They can be used for form, distributor and fountain rollers." It must be remembered that the members of this Association sell both composition and rubber rollers. It is modern non-meltable composition rollers which make it impossible for us to come out and recommend rubber rollers as the only rollers to be given consideration by a small daily newspaper or others.

Those who are selling rubber rollers must remember that there have been some very poor rubber rollers placed on the market. These rollers have quickly swollen and some have been very difficult to regrind. Frequent regrinding of rollers adds considerably to an already high initial cost.

Maintenance Low on Rubber Rollers

On the other hand, the properly made rubber roller does not swell quickly, retains its good printing surface over a long period of time and needs minimum attention in so far as resetting is concerned. These rollers do not have to be washed up when conditions are right. They will not run down as they are not affected by temperature, frictional heat or humidity.

These are the reasons why a majority of the large metropolitan newspaper plants use rubber rollers. They give far more uniform service than the regular composition roller and fit in ideally with the requirements of present-day newspaper speeds. *The American Pressman* has not at any time intentionally discouraged their use by newspaper plants. On the other hand, it has helped in the introduction of these rollers. At least two of the leading manufacturers of rubber rollers have constantly used this medium, so there are no grounds for any contention that we have been intentionally or unintentionally biased on the subject.

Lexene

A NEW development in paper manufacture, involving the use of rubber latex in making coated papers for the printing and lithographing trades, has been announced by the United States Rubber Company.

The name given to the special latex formula is Lexene. The following claims of special interest to printers are made by the manufacturers for coated papers containing the new ingredients:

> Because rubber is waterproof, the water content of the paper is more stable and the tendency of the sheet to curl, shrink or expand is largely overcome, eliminating many pressroom difficulties.
>
> Because rubber is non-absorbent, a Lexene-coated sheet uses less ink and the ink "lays" better. Solid blacks, for instance, are beautifully soft and even in texture, and experiment has demonstrated that the ink dries more rapidly and offset is greatly reduced.
>
> Because rubber is continuously flexible, it binds the harsher coating ingredients in a soft, pliable coating and greatly increases the folding strength.

The claim for the new paper in the field of lithography is that it may be lithographed satisfactorily on both sides.

The use of the new ingredient has passed the experimental stage, several of the large paper manufacturers having been engaged in making and marketing the paper for nearly a year to test its qualities and acceptability among printers. Lexene is handled by the Naugatuck Chemical Company, the subsidiary of the United States Rubber Company.

Developed After Exhaustive Tests

As a pioneer in the development and use of latex, the United States Rubber Company has been confident that latex should be so modified as to be used to good effect in the manufacture of coated papers. A specially prepared latex was developed, and contact was established with the laboratories of a number of manufacturers of coated papers, and a series of tests instituted. These tests covered not only the amount of the prepared latex that could be used to best effect, but also the problems of manufacture growing out of its use and the special characteristics of finished stock in which it was used as an ingredient. The tests covered also the use of Lexene in the body stock alone, in the coating alone, and in both the body stock and the cover.

By treating the coating material with Lexene, it was found that the product retained all the desirable qualities of standard coated papers, but that the use of the rubber ingredient gave certain new qualties of inestimable value to printers.

Except for a better appearance and a distinctive velvety "feel," the paper appears to be just like any other coated paper. The color and quality are uniform. Aging qualities are the same as in other papers. There is no rubber odor.

The presence of rubber in the coating material makes itself felt also in folding. Because rubber has strong tensile qualities and is very flexible, paper treated with it shows a tendency to bend rather than to break, giving pronounced superiority in folding qualities.

Printers report also that Lexene-treated paper seems to have an affinity for metallic ink. One impression on the Lexene paper gives as good results are are customary with two ordinarily. Very favorable results are obtained with ordinary zinc plates, but rubber plates act even better.

It is claimed for Lexene coated paper that it has proved itself under the most exacting, practical tests, not only in the laboratory but by printers who have used it in runs up to two million pieces.

Latest Trends in LATEX PROCESSES*

By G. W. TROBRIDGE

THIS paper is intended, in addition to reviewing some recent technical advances, to show more particularly how the course of development of latex processes has of late years been determined by economic factors. It is convenient to start with some processes with commercial possibilities for the direct utilization of latex developed about seven years ago from the work of Klein and Szegvari on electro-deposition; work on similar lines in the United States was also disclosed about the same time by Sheppard and Eberlin. Electro-deposition from latex mixings has been demonstrated on many occasions; what is not so generally appreciated is that an almost vital factor in these processes is the simultaneous disposal of the water by electro-endosmosis, this was essential for continuous working, for otherwise the latex mixings ultimately became unusable owing to progressive dilution.

In the early days of the electro-deposition processes it appeared that they might be of very wide application, and in fact there are few rubber articles which cannot be made thus. Two factors, however, have combined in the last few years to limit the applications of electro-deposition in industry. The first was the unexpected and unprecedented fall in the price of rubber. With the additional package and transport costs for latex remaining almost constant, this fall meant that rubber in the form of latex became relatively still more costly than plantation rubber, and, despite savings in other directions, the manufacture by electro-deposition of several lines ceased to be financially attractive in comparison with the older processes. The second factor was almost a natural consequence of the earlier difficulties of transport and technique.

Forms of Concentrated Latex

For years it had been apparent to many that a stable concentrated form of latex would have many industrial applications and moreover would at least partially rectify the absurdity of transporting more than two pounds of water for each pound of rubber. Two types of concentrated latex appeared on the English market within a few years. "Revertex" is a pasty but reversible concentrate made by evaporating the water from natural latex under conditions adverse to coagulation. Revertex accordingly contains the whole of non-volatile substances present in the natural latex, together with a non-volatile alkaline preservative. A concentrate of a different type is known as "Dunlop 60 per cent. Latex" and is the cream yielded by passing natural latex, to which ammonia has been added, through a high speed separator of the centrifugal type. A little rubber and a large proportion of the dispersed and dissolved serum solids are removed with the skim, so that the cream contains not only a higher proportion of solids—60 per cent. instead of about 30 per cent.—but also a higher proportion of rubber in those solids. Exhaustive experiments have recently shown that the correspondingly reduced content of serum solids is in no way detrimental to the ageing properties of products. In the following it may be understood that the term concentrated latex refers primarily to a centrifuged concentrate of the Dunlop type.

During the same period was developed also the Dunlop concentrator, which is mainly used for dispersing compounding ingredients in latex and simultaneously concentrating the resulting mixing by evaporation. In the preparation of a concentrate of this type the starting point may be either ordinary latex or Dunlop 60 per cent. latex, and the product may contain almost any desired proportion of solids up to about 80 per cent. Moreover by this it is quite practicable to produce mixings of rubber content as low as 15 per cent.

As was to be expected, the introduction of new intermediate products led to rapid development of processes for their utilization. Each new process was subjected where possible to a comparison of products and costs with those of existing processes, and there was thus selected for each application of latex the process shown to be most suitable by considerations of costs and quality.

Electro-Deposition Method

Electro-deposition accordingly finds a place today as an almost ideal process for the manufacture of a number of rubber and rubber-covered articles whose shape presents otherwise almost insuperable difficulties. The rubber reducing corset affords a good example; this article is provided with nearly two thousand holes for ventilation purposes, and previously these were punched by hand, the operation occupying a girl for nearly two days. By the use of a plate anode bearing plugs of non-conducting material projecting on both sides through holes corresponding with those to be produced in the article, the rubber components of these corset are deposited two at a time one on each side of the anode, and with the holes already present. There is a small saving in material but the substantial saving in labor cost is the outstanding feature of this process.

In rubber-covered metal screens the economic picture is somewhat different; the production of these became practicable only with the development of latex processes; hence there were no costs available for comparison. The most useful information obtainable was a possible selling price based on the service obtainable from a rubber-covered screen in comparison with that given by metal screens for the same purpose, and on this basis it has been found possible to obtain business at prices profitable to both sides.

In general, however, the availability of concentrated compounded latex mixings has led to the development of easily controlled mechanical processes, particularly suitable for articles of simple shape and where uniformity of gauge is required.

The proofing of fabrics and the manufacture of spread sheet were among the earlier applications of concentrated compounded latex mixings. The use in proofing of highly concentrated mixings containing ultra-accelerators, which cannot be used in naphtha doughs, renders it possible to carry out the operations of spreading, drying and curling simultaneously and in very few coats. By spreading a few coats of such a mixing on a faced sheet and subsequently stripping the rubber there is obtained a rubber sheet of strength previously unapproached by the older calendered or cut sheet; having no grain, such sheets offer considerable resistance to

*EDITOR'S NOTE: Paper presented at the meeting of the Midland Section, Institution of the Rubber Industry, held at Birmingham, England, March 3, 1932.

tearing; they are produced in a range of bright colors and have good ageing properties. It is a little difficult to assess all the advantages of latex in this sphere; the direct savings in solvent and labor are readily estimated, but there are also the indirect gains from reduced fire and health hazards.

Much the same may be said of the use of latex mixings in dipping processes. In toy balloons, surgeons' gloves, household gloves and almost every line previously produced by solution dipping, a latex process has proved advantageous in all features. The retailer and customer have here benefited by the elimination of vulcanization by sulphur chloride, which was previously responsible for the short life in storage or use of most dipped goods. New articles have been developed, and many lines have been improved and reduced in cost by the introduction of latex dipping process. A recent example is afforded by centre bags for golf balls; the direct production of these from a latex mixing by dipping yields a superior article at much less than the previous cost of cold-cured solution-dipped bags. Among new lines may be noted the fabric-lined rubber glove, which offers substantially greater comfort and resistance to tearing.

Limitations are indicated by the absence from the market of latex-dipped bottle teats, and here the cause is popular prejudice; the demand everywhere is for a perfectly transparent teat, even though, owing to cold cure, this be of short life and liable to become a danger from bacteria lurking in surface cracks. It has not yet been found possible to produce directly from latex a teat with the transparency and gloss demanded, though it is quite a simple matter to produce a latex-dipped teat which is more durable and safer than the cold cured article and is free from chlorine. It is of interest here to note that the importation of cold cured teats into France is prohibited.

Latex Produces Superior Quality Goods

In toy balloons latex dipping has not only reduced the time of each cycle of operations by over 90 per cent. but has also enabled balloons of superior physical properties to be produced in a wider range of colors and finishes. Incidentally, owing to the strength of the unworked latex rubber, some difficulty was encountered at first in producing small balloons of sufficient softness to be easily inflatable by mouth; this was overcome by the introduction into the latex mixing of a proportion of oil which would be absolutely prohibitive in a milled rubber of the usual type. In this line one small and often unrecognized problem still awaits solution—the uniform distension of airship balloons. In the spherical balloon the rubber functions to the best advantage, but normal inflation tends to stretch the airship balloon circumferentially twice as much as longitudinally, with the result that every airship balloon bursts at much less than its maximum length; this opportunity of effecting a saving is still open.

Apart from shape, the main criteria of surgeons' gloves are resistance to steam sterilization, and thinness with uniformity of gauge. The latex gloves have set entirely new standards; while previously gloves which withstood six sterilizations in steam without undue weakening or stretching were considered satisfactory, latex gloves on the market today may be relied on to be strong and shapely after twenty sterilizations.

The use of more concentrated mixings has facilitated the production by dipping of a number of thicker articles previously built by hand. Among these are electricians' and other industrial gloves, overshoes, beach shoes and other types of footwear. New and old processes may here be used in conjunction, for example in the application of a calendered outsole to an overshoe body or of a dipped covering to a built-up boot carcase.

The development of these dipping processes has reached a commercial stage only with the establishment of adequate control of the variable factors. Stability, viscosity and solid content are the vital factors in a latex mixing of given composition; these factors are to some extent interdependent, and since they also involve temperature and time these too must receive due attention. Control of coagulating, drying and curing conditions is of no less importance. This may sound a formidable list, but in practice the actual work of control often involves little more than maintaining the critical factors of the latex within limits by suitable additions; trouble elsewhere is nearly always traceable to failure of a mechanical or human element.

From the economic point of view it may be observed that the wide developments in latex dipping processes have taken place because of the relative unimportance of the price of rubber. In most articles made by solution dipping the cost of the material in the article is substantially less than the cost either of labor or of unrecovered solvent; as the latex process usually involves no solvent and gives substantially reduced labor costs, there is ample margin to cover the difference in the cost of rubber. Frequently also there is a reduction in overhead costs by a shorter cycle of operations, which enables increased production from a given floor space.

A somewhat different position may be seen in the present state of latex extrusion processes. Where the cost of the rubber in an article is high in relation to the labor cost, as for example in motor tubes, latex processes cannot hope to compete under existing conditions. Motor tubes afford a particular example. It is quite practicable, on account of the increased strength of the unworked rubber, to produce directly from latex a satisfactory motor tube which is appreciably lighter than the standard tube of the same size. Labor costs in both cases are quite small, hence, as the cost of latex includes a fairly constant additional cost per pound of rubber for packing and transport, it is apparent that, as the price of rubber falls, a point is reached where the latex process ceases to be attractive.

The other side of the picture may be seen in rubber thread. In the manufacture of thread the material costs are small in relation to the labour costs, and there is correspondingly greater scope for the application of latex. Round thread made by latex extrusion process offers advantages in several respects. By the square thread process it is difficult to produce lengths much greater than 100 yards, but lengths of several thousand yards are quite readily obtained by extrusion. The round and uniform cross section gives substantially greater strength than that of the corresponding square material, as well as increased resistance to chafing, while counts between 18 and 100 can be produced with almost equal facility.

Cellular Rubber Articles

One range of latex products still remains, namely, cellular rubber articles. Ordinary sponge rubber processes suffer from the disability that only the simplest kind of moulding can be effected, hence all intricately shaped articles made from this material have to be assembled by hand from sheet or strip. Here it may be helpful to state the structural differences between the various types of expanded rubber. In latex cellular rubber all the cavities are interconnected, and even the outer skin is highly porous. In sponge rubbers produced by older methods the cavities may consist of separate bubbles, as in rubbers of the onazote type, or they may be interconnected as in ordinary toilet sponges, but a common feature is an almost impervious skin adjacent to the mould; this skin is usually cut away. In latex cellular rubber the vital feature for manufacturing purposes is the mobility of the frothed mixing prior to setting; this permits articles of almost any desired shape to be moulded accurately in one piece. For upholstery purposes the usual demand is for shaped cushions of suitable softness; this factor is determined by the quality of the mixing, the degree of aeration and above all by the provision of suitably shaped and spaced vertical cavities. To assemble such an article from the sheets and strips available by the older processes would involve not only a high labor cost but also a waste of material both from cuttings and because more material would have to be used to give reasonable mechanical strength. Latex cellular rubber cushions thus offer definite advantages in manufacture and also present a unique combination of features to the upholsterer and user. Hence such articles can be offered at prices which are advantageous to all parties. In this field steady development may be anticipated, since there would appear to be no probability of the older processes being able to compete, either in cost or in quality.

The feature of easy moulding has permitted similar advantages to be obtained in the production of moulded cellular hard rubbers.

These may be made either with large cavities for use in constructional or insulating materials, or with ultra-microscopic pores for filtration purposes and for battery separators.

And even more recent development is the use of latex cellular rubber for the reproduction of ornamental articles in plaster or concrete. Hitherto the reproduction of articles such as statuettes and mouldings has been effected by casting in gelatine moulds, which, as would be expected, are not very durable. By providing a model with an impervious skin and then forming around this a cellular rubber covering there is obtained a flexible and resilient mould from which an indefinite number of reproductions of the model may be made.

No reviewer of recent work could fail to be impressed by the range of intermediate products in which latex is now becoming used. Concentrated latex in particular is proving a most valuable medium for introducing some of the properties of rubber into a variety of materials; papers, packings, adhesives and cleaning media are only a few. The widest applications here at present are in adhesives, particularly where flexibility is a desirable feature as for bookbinding and leather work. Flexibility also is an important factor in the white shoe cleaner, where the use of latex considerably increases the resistance to failure of the applied coating on repeated bending. Closely related is the use of latex in the binding of the jute fibres of woolpack material, and latex bonded brake linings have recently appeared on the market.

Wide Field of Possible Application

The application of latex mixings to horsehair, pig hair and other fibres has considerably improved these materials for upholstery purposes by locking the fibres and so preventing the formation of lumps; latex mixings have also been used with considerable success for the anchoring of carpet pile with the simultaneous provision of a non-slip and waterproof backing.

Dispersions containing rubber and wax have proved advantageous for various protective purposes, and an attempt is now in hand to revive the export trade in tin plates by using such a dispersion for protecting the plates against corrosion. There have even been recent patent relating to the use of latex in a dentifrice, a chewing gum and a hand cleaner, so there would appear to be a very wide field open to this most versatile material.

That completes a rapid review of some more recent advances in latex technique and their application to manufacturing processes. In conclusion the author will formulate a few surmises on the future of latex processes.

The broad fact which has emerged with some frequency from the foregoing is that the direction of development has been considerably changed by the decline in the price of rubber; it is safe to say that a substantial increase in the latter would lead to renewed interest in a number of latex possibilities which for the present must remain in abeyance.

There is as yet, however, no promise of any such increase; it is therefore, essential to consider the possibilities of reducing the relative cost of latex. The transport in bulk of a product of still higher rubber content might effect something in this direction, but more is desirable than at present appears probable. Plantation rubber is usually packed in a case which weighs about 15 pounds and contains 224 pounds of rubber. For transporting as concentrated latex the same quantity of rubber in the same total weight the concentrate would have to contain at least 93 per cent of rubber and be transported in bulk. It would thus appear that, for a long time to come the cost of rubber in the form of latex is likely to be appreciably higher than the cost of plantation rubber. Nevertheless, even with this handicap there remain many directions in which developments may reasonably be expected.

In recent years there have been numerous improvements in the physical properties of reinforced rubbers, but latex offers at least the possibility of further substantial advance. The main difficulty in the use of latex has been that of effecting reinforcement of the rubber without mechanical working; while this still exists, there yet remains the possibility of combining suitable steps of new and old procedures; methods have been given in patent specifications for preparing the mixing in the liquid state and for subsequently subjecting the dry mixing to sufficient mechanical working to effect the necessary union of reinforcing agents and rubber with a minimum of damage to the nerve of the latter. The pursuit of this line of investigation to a successful conclusion would open a wide field of further applications of latex.

Latex in Footwear

It would appear also that considerable scope for latex processes exists in the leather trade. In footwear the use of latex adhesives is becoming general, but the possibilities of a synthetic leather with the porosity of the natural product are scarcely known in this country. Results obtained from latex indicate that such a product is no improbability, and the question arises whether the day is approaching when the leather shoe or glove will be as obsolete as the leather tire tread.

The author desires, in conclusion, to acknowledge his indebtedness to the Dunlop Rubber Company for permission to present this paper, and to colleagues for suggestions and practical assistance.

DISCUSSION

A. S. Roberts, asked whether Mr. Trobridge could carry his vision into the future and say whether the heavier type of rubber articles usually described as mechanical articles would ever be made under these processes. The other point concerned the application of cellular rubber. There had been a prejudice against the use of the old-fashioned type of sponge for upholstery, particularly, as applied to motor car seats; the main objection was that when a bump was experienced the sponge did not recover sufficiently quickly, with the consequence that on the recoil a jolt was experienced. Was the latex sponge more acceptable?

Mr. Arundel asked in connection with electricians' gloves how the dielectric resistance of rubber prepared from the latex compared with rubber prepared in the ordinary way.

H. Burton enquired with regard to solution-dipped goods, whether they necessarily must be cured in sulphur chloride. Could they not have been cured by the same methods of dipping and heat curing, as latex dipped goods as it appeared that it was the sulphur chloride which was one of the detrimental factors in the stability of solution-dipped gloves and other similar articles.

Mr. Dwyer asked whether Mr. Trobridge would say what were the features of vulcanized latex when compared with latex subjected to subsequent vulcanization. He also missed in Mr. Trobridge's catalogue of the applications of latex, the stringing for racquets, which was proving a very good thing.

Mr. Trobridge in reply, said he was not sure what was included in the heavier types of articles, but a start in that direction was being made with overshoes. Before latex processes came along, the only dipping process used in connection with overshoes was the dip into oil polish at the end, which was really not in itself a rubber process; the latex process had definitely replaced the older building-up by hand from sheet with quite substantial advantages. By this means, it was quite practicable, either to dip over a woven lining or to apply a fabric insert between successive dips. This might afford some promise of similar processes for Wellington boots and waders.

With regard to sponge in upholstery, he was of the opinion that it depended upon suitable design and shape, and in design he included the softness of mixings, and the provision of the cavities mentioned earlier. He had found sponge rubber upholstery perfectly comfortable, both for arm-chairs and motor-car use; a sponge rubber driving seat certainly gave nothing to complain of from the point of view of comfort, even on bad roads.

With regard to Mr. Arundel's enquiry concerning electricians' gloves, the position was that dielectric strength had given appreciable trouble, but that had been dealt with satisfactorily, and gloves were actually on the market tested up to 5,000 and 10,000 volts. In reply to Mr. Burton, he stated that the usual practice had been to use sulphur chloride for the cure of dipped goods, particularly on account of speed. An ordinary short steam cure was not practicable because in rubber solutions ultra accelerators could not be used. Ultra accelerators introduced into a rubber solution mixing containing sulphur would turn it into a jelly in a few hours. With regard to Mr. Dwyer's questions, he believed a number of lines were now on the market sold under the trade name of "Vultex," but he had no experience of them.

Chlorinated Rubber-'Tornesit'

INTEREST in the possibilities of chlorinated rubber has recently been renewed through the report by J. G. Fol and A. B. Bijl, published in the April, 1932, issue of the *Bulletin of the Rubber Growers Association,* London. An abstract of the report is given below:

Although the original patent on chlorinated rubber was taken out by Peachey in 1915, it is only recently that developments of its uses have been made possible by overcoming manufacturing difficulties.

Chlorinated rubber is now made by the New York-Hamburger Gummi-Waaren Compagnie of Hamburg on a large scale, and marketed by the "Herold" A.-G. also of Hamburg, under the name of "Tornesit." It is a rather coarse, somewhat yellowish powder. In contrast to previous processes, according to which chlorination was started at room temperature, in the patent application of the above firm the rubber solution is heated to about 80° C. or higher, prior to its being treated with chlorine. In this way a stable product is obtained, whereas in former processes it is stated that undesirable decomposition products were formed which —when left in the final product—caused development of hydrochloric acid.

The material is soluble in a great number of solvents such as benzene and its homologues, esters, acetone, carbon disulphide, carbon tetrachloride, chloroform, trichlorethylene, etc. Tornesit also dissolves readily in various oils, such as linseed oil and wood oil. A definite limit of the solubility in benzene was not found. A solution of 65 per cent concentration is a viscous liquid which, when worked with a spatula, can take up further quantities of Tornesit. In this way a tough, kneadable mass is finally obtained. Tornesit dissolves much more slowly in carbon tetrachloride than in benzene, carbon bisulphide, and trichlorethylene. Tornesit is practically insoluble in water, ethyl alcohol, benzine (petroleum fraction), and mineral oil.

Heated with water on the steam-bath, only about 0.2 per cent of the material dissolves; in cold ethyl alcohol 0.3 per cent; in boiling alcohol 0.6 per cent. It is questionable whether the chlorinated rubber hydrocarbon itself is really dissolved. It may be that the soluble portion consists principally of the constituents which are soluble in water and alcohol, and always present in raw rubber, and consequently also in Tornesit. In cold as well as in hot benzine (boiling point 70-85° C.) Tornesit is insoluble.

By dissolving Tornesit in benzene, and pouring the solution on to a polished glass plate, a film was obtained after evaporation of the solvent. It proved very difficult, however, to make good films regularly. Usually, after loosening them from the glass, they were warped, and showed unevennesses. Besides, they often cracked. Further, the films were brittle, so that they broke when bent strongly. By making use of plasticisers such as diethylphthalate, triacetin, tricresylphosphate, etc., the brittleness of the films can be diminished. Linseed oil, wood oil, resins, etc., have the same effect. Raw rubber itself may also be used as a plasticiser, a quantity of 5 to 10 per cent having a marked effect. The raw rubber can be easily added in a dissolved form to the Tornesit solution, and mixed homogeneously with it during the manufacturing process—viz., after the chlorination process is finished, and before evaporation takes place.

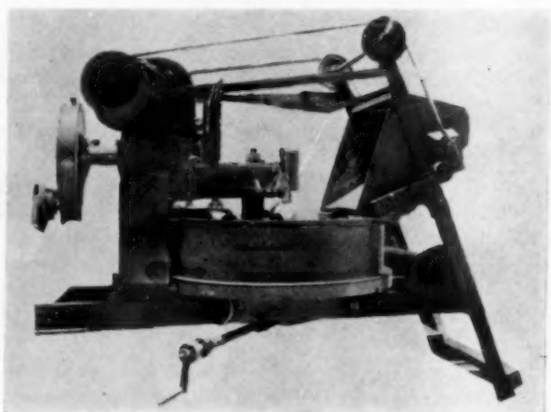
The great resistance to strong chemical agents which was confirmed by these investigations undoubtedly justifies the endeavors to apply Tornesit for the manufacture of paints for the protection of materials against corrosion and chemical influences. The authors are not entirely convinced, however, that the problems presenting themselves in this connection are as yet fully worked out.

Besides its use in the preparation of paints and lacquers, other applications for Tornesit may be found, for instance, as a substitute for cellulose derivatives in the manufacture of plastic masses, artificial silk, artificial leather and cellophane. Through its non-inflammability the material distinguishes favorably from cellulose derivatives. For the same reason it may perhaps be used for impregnation in manufacturing fireproof textures, which will be waterproof at the same time. For the manufacture of stencils, Tornesit seems also to be of importance. As Tornesit is a non-conductor, it may also be used as an insulating material, for instance, for the replacement of cellon-lacquers. All these are possibilities which must be left to the future.

Lancirick Mixers

COUNTER current batch mixers, built under the Eirich patent, are now being offered to the industry by the Lancaster Iron Works, Inc., Lancaster, Pa. The accompanying illustration of one of the laboratory type of mixer, with direct motor drive and elevator, shows the general construction of the machines.

The mixing pan rotates in an opposite direction to the mixing-star. The pan is carried by trunnion rollers with machine-ground faces. The star, with two flexible mixing-arms and manganese cast-steel blades, is equipped with one steel roller on ball-bearings. The mixing pan and star are



eccentric. The roller rotates on a crankshaft, follows the layer in the pan and provides for adjustment of clearance between its surface and the pan. The speed of the pan is 12 and the star 60 r.p.m.

The blades and roller are designed to accentuate friction within the batch. The batches will not show any signs of heat, as the friction within the batch is not only enforced by the movements of the tools but by the counter flow of the batch itself.

Lancricks mixers are in operation for abrasive compounds and rubber solutions; for new cold processes for fabricating rubber products such as flooring, rubber anti-corrosive and heat-resisting paints, etc. The machines are manufactured in various sizes.

Aging of Uncured Compounds

THE old time practical rubber man had many excellent ideas for producing superior rubber goods, for which he could not assign any scientific reason. One of these ideas was to age before use uncured rubber compounds. If compounds containing large amounts of reinforcing pigments that are difficult to disperse are aged, and remilled at a certain period after the mixing, it will be found that the stiffening of the compound due to this aging causes the pigment particles to be broken up and better mixed. This improvement in quality may be demonstrated by tensile tests.—R. R. Olin Laboratories, Akron, Ohio.

EDITORIAL COMMENT

The New Rubber "Junta"

WITH the recent creation of a committee of five headed by George T. Bishop, to handle the destinies of the rubber industry we have embarked upon another "noble experiment" to solve the tribulations of this much harrassed business. It is hoped that the new regime will be more successful in point of accomplishment than the much-heralded but short-lived "dictatorship" of General Lincoln C. Andrews, whose efforts, as head of the Rubber Institute, to substitute "cooperative competition" for "profitless prosperity" proved so futile.

Press stories would indicate that the new committee is not expecting to assume dictatorial powers but will only act in an advisory capacity. Unfortunately the experience in the past has been that much of the troubles of the industry can be traced to advisory counsel which was never followed. A committee empowered with authority to enforce its demands might go further under the conditions prevailing in the industry today. But the new "noble experiment" should have its fair trial.

It is not exactly clear just how and by what procedure the new committee was formed and what powers they will enjoy. Leaders in the industry have maintained a peculiar reticence to talk about the perogatives or purposes of the new committee but it is evidently going ahead with its plans, backed by some authority or strong combination of interests. The personnel of the committee could not be finer and represents a strong array of executive talent. It should accomplish results.

Just what the committee plans, however indefinitely as yet, to do, or how it proposes to do it, remains to be revealed. It is evident from the composition of the committee, that the group will approach the various problems at an entirely different angle from any previous approaches to the same set of difficulties. So far as the implications of a dictatorship may be entwined in the background, it is evident that the potentialities are those of the sort of influence that works through boards of directors, rather than through executive officers. Agreements between rubber executives in the past have not always proved workable.

Of the problems before the committee, well informed sources point out that with raw materials as low as they are it may be that little can be accomplished in the way of stabilizing, either production of these materials, or prices. Mail order and filling station distribution, on the other hand, are weighty and troublesome questions. The status of the independent dealer is closely involved therewith, and with some tire lines he is indispensable. It may be that the new group will go directly to the heart of things and concentrate its entire attention on the general problem of distribution.

An interesting feature of the whole matter is that the existence of the committee has not yet been officially announced.

Research During the Depression

THE value of research work, even in times of economic depression, has been vividly brought out by George W. Pressell, vice-president of E. F. Houghton & Co., in a current issue of *Business Administration*. His arguments are worthy of consideration by those executives in the rubber industry who may, at this time of distress, look upon research activities and research departments as the place where operating expenses may be easily reduced.

"Research pays," says Mr. Pressell, "because it develops new products which open up new markets; it improves present products, thereby increasing their salability; it develops profitable markets for by-products, thereby reducing manufacturing costs, and it keeps your products in advance of competition, thereby reducing selling resistance and selling costs.

"These are the four chief values of research and they hold true whether you are manufacturing matches, or motor cars, cosmetics or coffins.

"Economy is the greatest sales appeal today. If you can offer products which reduce manufacturing costs, you can sell these products at a price which yields a profit, for every company must reduce manufacturing costs to survive.

"Industrial concerns looking for the way out of the present recession in the economic cycle should look to intelligent industrial research. Research will point the way to lowered manufacturing costs. Through lowered manufacturing costs industry will be able to give a larger share of its income to labor. Since it is agreed that our country's prosperity depends upon the purchasing power of labor, any material increase in the income of labor will certainly assist in bringing about the return of normal business conditions."

The RUBBER AGE

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

INDIA TIRE INCREASES SALARIES 20 PER CENT

The India Tire and Rubber Company, Akron, Ohio, announced on July 20 a 20 per cent salary increase aimed at offsetting a similar reduction instituted last January. It was understood that nearly 400 factory and fifty office workers would benefit.

"The plan," W. G. Klauss, president, said, "contemplates adding to the wage and salary checks during the last six months of the fiscal year a sufficient amount to enable all employes to recover the pay they were deprived of by taking the (20 per cent) cut."

That reduction, he explained, was made with the understanding employes would be reinmbursed "if the organization, by its own efforts, made the company profitable during the first six months of the year."

In the summer of 1931 the India company adopted the six-hour shift to provide better working conditions for the pit workers and as a result of the improvement in attendance, greater efficiency and employe satisfaction the plan was extended last month to all divisions of the company.

Production schedules have been maintained at high levels for some time and it is reported that the company is in the midst of the greatest production and sales in its history.

Goodrich Picnic Plans

Plans have been completed for the annual B. F. Goodrich Company "Play Day" to be held at Euclid Beach Park, Cleveland, Monday, Aug. 8. The "Play Day" committee, headed again this year by Arthur C. Sprague, employment manager, outlined the program that will entertain more than 25,000 employees, their families and friends throughout the day.

The morning activity will consist of athletic contests, child's bathing beauty contest, girls' sport costume beauty contest and park amusements. Additional sport contests and the annual Goodrich-Miller softball game will make up the major portion of the afternoon program. Several special events are planned as additiona! attractions.

There will be dancing in the main pavilion during the afternoon and square dancing in the log cabin to the tune of an old-time orchestra, where retired Goodrich employees will make their headquarters. The entire array of park amusements has been leased for the day by Goodrich and all holders of "Play Day" tickets will be admitted free to the riding concessions from early morning until late afternoon.

Kelly-Springfield Stock Plan

G. A. Biddle, secretary of the Kelly-Springfield Tire Company capital readjustment plan committee, has announced that over 66⅔ per cent of each class of stock or proxies has been deposited with the committee, which is sufficient to declare the plan operative. However, the committee extended the time for deposit to July 15 and anticipated that a further extension will be unnecessary.

Armstrong Maintains Prices

The new Federal excise tax on tires and tubes will be absorbed by the Armstrong Rubber Company, New Haven, Conn., according to James A. Walsh, president. The company does not plan to pass the levy on to the consumer for some time at least, he said. The Armstrong company has been operating night and day continuously for the past four weeks, and 100 additional hands have been added to the pay roll. The increase in production has made it possible for the tax to be absorbed, it was explained.

Rates on Scrap Rubber

As a result of the hearing before the Central Freight Association at Chicago on May 17 to consider reductions in freight rates on scrap and reclaimed rubber as reported in the July 10 issue of THE RUBBER AGE, which propositions were supported by the National Association of Waste Material Dealers, the Association now announces that favorable action has been taken by the carriers.

In future the rates on reclaimed rubber and rubber shoddy in Central Freight Association territory will be on basis of sixth class, carloads, minimum weight 40,000 lbs., a reduction from fifth class, and fourth class, less carloads, a reduction from Rule 26 rating. As soon as concurrences are received from the Trunk Line and New England Freight Associations the same bases of rates will be made applicable throughout the entire Official Classification territory.

On scrap rubber and scrap tires, carloads, the carriers approved a basis of rates at 20 per cent of first class, minimum weight 40,000 pounds, for application throughout Central Freight Association territory, a reduction from sixth class (27½ per cent of first class), which was the basis asked for. However, carriers instead of according a minimum weight of 30,000 pounds as covered by the petition, increased it to 40,000 pounds.

SEARS-ROEBUCK FAILS TO ADD TAX TO TIRE PRICES

The new Fall and Winter general catalog of Sears-Roebuck shows no advance in automobile tire prices from the previous mid-Summer catalog, but tax is to be added.

The tire section of the catalog, which is reported to have been printed before the Federal tire and tube tax was enacted, carries the following statement:

"The government is considering adding a tax on tires and tubes. Therefore all tire and tube prices are subject to any tax which may be added."

The wording of the statement indicates that Sears had originally intended to raise tire and tube prices fairly promptly after the tax went into effect, but deferred doing so because of developments in the tire industry.

As a result of more liberal dating terms offered by manufacturers, independent dealers are understood to have accumulated considerable stocks of tax-free tires prior to the tax date, and mail-order companies, in view of this situation, were unwilling to raise prices until assured that other retail outlets would do likewise at the same time.

Prior to July 4 Sears put out a special circular urging tire users to buy promptly, "as these prices are subject to change without notice." This circular is said to have brought in considerable business.

Catalogs for the first time list the addresses of the company's 392 retail stores.

Hall Appoints New Agent

R. D. Abbott, who has been appointed the new manager of the C. P. Hall Company of Los Angeles, California, the Pacific coast subsidiary of C. P. Hall Company, Akron, has had a wide experience in the rubber industry. He is a graduate of Cornell University of the Class of '17, with the degree of Bachelor of Chemistry, and began work with the Miller Rubber Company, Akron, O., as chemist and compounder, later becoming manager of the tire development department. When the Miller company was absorbed by Goodrich, Mr. Abbott went to California and entered the retail tire business, becoming manager of the Goodrich Silvertown store in Long Beach, Calif., and at the same time handling the sale of raw materials to the growing rubber manufacturing trade in Los Angeles. His present headquarters, with the C. P. Hall Company of California, are at 1340 East 6th Street, Los Angeles.

DECLINE IN EUROPE'S RUBBER STOCKS GROWS

Recent declines in European stocks of crude rubber have reduced Continental supplies approximately 15 per cent since the first of the year and 23 per cent from the high record reached in 1931. The opinion is expressed in some rubber circles that if European stocks drop with continued steadiness and accumulations continue in the United States, the latter country will find itself in the position of exporting crude rubber to European markets.

This opinion is advanced by Symington and Wilson, well-known Mincing Lane rubber brokers, in their weekly review of the London rubber market. Pointing to the decrease in stocks of rubber at London and Liverpool, representing the reserve supply for all European manufacturers, the London experts state that if American manufacturers continue their policy of accumulating rubber at present prices and if European stocks continue to dwindle supplies in Europe may become insufficient for the needs of Continental manufacturers, causing a rise in price sufficient to pay for reshipment from America to Europe.

Stocks of rubber now on hand at London and Liverpool total 108,523 tons, compared with 127,222 tons on January 2, 1932, and with the record high of 140,207 tons on May 16, 1931. Symington and Wilson estimate the average consumption of European manufacturers at 20,000 tons a month, indicating that present stocks represent about 5½ months supply against 7 months supply a year ago. Stocks at European ports are small and may be considered as stocks in transit with no importance in regard to the available supply.

On the other hand, surplus holdings of crude rubber in the United States have continued to mount to new high levels in line with the policy of most important American consumers of extending commitments on a declining market. At the end of May, the latest date for which figures are available, stocks of rubber in the United States were 346,231 tons, a total 56.8% larger than on May 31, 1931, and comparing with 322,826 tons at the end of 1931.

Fisk Absorbs Tax

Following in the lead of the Firestone Tire and Rubber Company and mail order houses, the Fisk Rubber Company, Chicopee Falls, Mass., has decided to absorb the new Federal tax on tires and tubes, according to an announcement by company officials.

When the tax became effective June 21 a new schedule of prices was announced to include the Federal levy, but zone and office managers now have been ordered to allow dealers new discounts of from 10 to 13 per cent, the amount of the price increase. This will offset the tax.

Directorship to be Filled

The vacancy on the board of directors of the B. F. Goodrich Company caused by the recent death of C. C. Goodrich, son of the founder of the company, will be filled by election at the next meeting of the directorate on August 9th.

Registering Auto Trolley Cars

Rubber-tired street cars are motor vehicles in the eyes of the law and are subject to registration, just as is any other motor vehicle in Wisconsin, the attorney general has ruled, in connection with the motor bus lines in the town of Kenosha. Kenosha is the only city in the State which has buses equipped with rubber tires not traveling on stationary rails, although propelled by electric power transmitted through a double trolley operated on overhead wires.

Standardizing Tire Advertising

Directors of the National Tire Dealers' Association, meeting in Chicago recently, predicted the eventual formation of a bureau of tire advertising standards within the tire industry. Cooperation of both dealers and manufacturers is expected in such a venture, and it was pointed out that something of the sort is needed to hold in check the prevalent price hysteria in tire advertising.

Arrangements were made by the directors for the annual convention of the Association to be held at Atlanta, Nov. 14 to 16; and the following topics were chosen for discussion then: the future of the independent dealer, mail order competition, and "doughnut" tires.

June Rim Output Drops

Total rim production during June was figured at 500,000 units representing a decline of something like 32 per cent from May. The June figure was less than half that of the corresponding month of last year, according to the returns of the Tire and Rim Association.

With 398,551 units of the drop center type, that style of equipment engaged 79.8 per cent of production. This compares with 72.7 per cent in May and 60.8 per cent in June a year ago. Maximum concentration was on the 18 x 3.25 E size, which accounted for 44.1 per cent of the total, while the 18 x 3.00 D size accounted for 28.3 per cent of the total.

The complete record for the month appears in tabular form at the foot of this page. The total output for the past three months, comparative with last year is as follows:

	1932	1931
April	652,126	1,717,652
May	657,995	1,508,349
June	499,441	1,084,707

General Motors Shows Drop

A decline of 53 per cent in June sales to world dealers from last year and of 45 per cent in the first half of 1932 from the first six months of 1931 was reported recently by the General Motors Corporation.

June sales to world dealers in June were 52,561 compared with 66,739 in May and 111,668 in June, 1931. They were the smallest for any month this year and the lowest for any June since 1924.

DU PONTS ADOPT TRADE ACCEPTANCE PLAN

In a formal announcement issued recently, the E. I. duPont de Nemours and Company have endorsed the plan for an increased use of trade acceptances that Irénée duPont, vice-chairman of the company, was active in sponsoring and that recently received the approval of the Young committee of bankers and industrialists. The duPont company said that it and its subsidiary and affiliated companies would adopt the practice of taking short-term acceptances from responsible customers in payment of goods sold to them and of issuing trade acceptances promptly in payment for goods purchased.

Other large industrial concerns that have adopted the plan, the announcement said, were the American Rolling Mill Company, the Campbell Soup Company, the General Electric Company, the General Motors Corporation, the National Steel Corporation, the Standard Oil Company of New Jersey, the United States Rubber Company and the Westinghouse Electric and Manufacturing Company.

The company gave as its reasons for supporting the trade-acceptance plan the belief that it would assist legitimate business to obtain needed credit from banks, would increase bank deposits, and would serve as a means of expanding the Federal Reserve Banks' outstanding credit.

The trade acceptances received by the duPont companies would be discounted at banks or sold to banks through note brokers, the statement said, and the company would urge the banks receiving trade acceptances to rediscount them with the Federal Reserve.

The announcement defined a trade acceptance as a time draft drawn by the seller upon the purchaser of goods, and customarily sent by the seller to the buyer, accompanying the invoice for the goods. The buyer signs the trade acceptance across the face, with the date and place of payment, and returns it at once to the seller, who is then in possession of a desirable form of two-name commercial paper, with a definite maturity date, eligible for rediscount at the Federal Reserve Banks if maturing within ninety days.

Rubber Stock Quotations

	Last Price		—1932—	
	July 19	July 5	High	Low
Aetna	1½	1⅝	3	1½
American Hard Rubber	—	—	—	—
Faultless	18½	18½	25	12
Firestone	—	—	15	10¾
do. 6% pfd.	47	46	59½	45½
Fisk	⅛	¼	⅝	⅛
do. 1st pfd.	—	⅝	⅞	¼
General	40	45	45	25
do. pfd.	60	60	—	—
Goodrich	—	2½	5⅝	2¼
do. pfd.	8	8	17	7
Goodyear	8¼	6⅝	18¾	5½
do. 1st pfd.	—	19¾	61	19¾
India	1¾	1¾	7	½
Kelly-Springfield	—	⅞	2⅞	½
do. 6% pfd.	10	18	30	16
Lee	—	2¼	2¼	2
Mohawk	1¼	1¼	2½	1
do. pfd.	20	20	—	—
Norwalk	—	1	—	—
Pirelli	—	—	31¾	21
Raybestos-Manhattan	5	5	11½	4⅞
Seiberling	1	1	4½	1
do. pfd.	7	15	22	7
Thermoid	1	1¼	3	⅞
U. S. Rubber	2½	2	5⅝	1¼
do. pfd.	5	4	11½	3¾

Rubber News Around the World

TIRE MARKET IN AFRICAN GOLD COAST

Approximately 50 per cent of all the tires used in the Gold Coast Colony, of French West Africa, is manufactured in Great Britain. This estimate, of course, includes tires which are manufactured in branch factories of American firms located in England, according to Department of Commerce reports. The Dunlop is a very popular brand of tire sold on this market. Since most of the Europeans resident in this colony are employed by the Gold Coast Government, they usually deem it expedient to buy tires of British manufacture. A large proportion of all the motor cycle and bicycle tires used in the Gold Coast are imported from England, although France and Germany also have a small share of this trade.

U. S. Trade Growing

The United States is securing an increasing proportion of the total tire trade in the Gold Coast, supplying approximately 30 per cent in 1931, as compared with 18 per cent in 1930. Dealers report that American tires are becoming increasingly popular on this market, and it is expected that our share of the total trade will continue to show a favorable increase. The willingness on the part of American manufacturers to replace defective casings is appreciated by local dealers. At present, four leading makes of American tires are being sold on this market, and one make in particular has become increasingly popular in the past year, owing, for the most part, to the aggressive sales efforts of the distributor of this line. Practically all of the American cars entering this market are equipped with either four or five tires of American manufacture, but replacements with the same brand of tire are not always made. The unfavorable rate of exchange has affected adversely sales of all American products, and tires are no exception.

The Michelin is the most popular French tire sold on this market, and France's share of the total sales of tires in this market is approximately 18 per cent. The remaining 2 per cent of the tires sold in the Gold Coast is of Canadian, German, or Italian manufacture.

Imports of Tires Into the Gold Coast Colony

Country of Origin	1929	1930	1931
United Kingdom..	£84,445	£81,780	£37,616
United States.....	23,948	26,155	21,729
Canada	2,537	.....	758
Germany	4,260	3,891	599
France	27,729	20,355	14,084
Netherlands	545	1,504	718
Italy, ...	565	.....	227
All others.....	1,034	9,274	398
Total £145,063	£142,959	£76,159	

I. R. I. Golf Tourney

The big golfing event of the rubber industry in Great Britain is the final for the Wallwork Cup, presented to the Institution of the Rubber Industry by Col. James Wallwork.

The Institution has a very strong golfing society and this year five qualified for the final from Scotland, four from Manchester, three from London and one from the Midland Section. The final was played at the Dalmahoy Golf Club, Edinburgh. The competition was played over 36 holes medal play and J. Entwisle, the managing director of the Hertfordshire Rubber Company, won the competition with a score of 81-77, and played over a handicap of 12. Mr. Entwisle has been a recent visitor to the United States.

Swiss Oppose Bata

Reports to the Department of Commerce indicate that the Swiss shoe industry is resisting the plan of the Bata organization to establish a factory at Mahlin, Switzerland. The Swiss industry is opposing the establishment of the factory, which would turn out shoes, tires, and rubber shoes and give employment to about 800 workmen, on the ground that Bata's mass production methods would ruin the local industry. The Swiss shoe industry has petitioned the Government to refuse Bata a permit to bring in 80 workmen from Zlin to form a nucleus for his Swiss organization.

Footwear in Hong Kong

There are four medium-sized factories in Hong Kong engaged in the manufacture of rubber soled shoes, generally from reclaimed rubber. All of these factories are reported to have made good profits in 1931 and during the last four months were unable to keep up with the demand due to the anti-Japanese boycott, when imports of rubber shoes from Japan stopped. Japan has been the principal competitor in this line. The output of rubber shoes during the year was estimated at between 5,000,000 and 6,000,000 pairs. In this line also there has been a certain building up in export trade.

Firestone-Spanish Plans

Reports have been current in Akron that the Firestone Tire and Rubber Company have been negotiating with Spanish industrial and banking interests for the organization of a Firestone tire manufacturing unit in Spain, but no confirmation has yet been forthcoming from Firestone officials. Newspaper dispatches report that Harvey S. Firestone, Sr., will make no comment on the story.

A news dispatch from Madrid, Spain, stated that five Spanish banks had offered to subscribe 75 per cent of the capital necessary to launch the proposed organization.

TIRE MARKET IN D. E. I. SHARPLY CUT

It was not until during the first quarter of 1932 that Netherland India felt the full force of the unfavorable world-wide economic and trade conditions. In 1931 prices for the export crops fell to levels even lower than those prevailing before the war. The operators of rubber estates, however, kept their estates in production, although operating at great losses, in the hope that restriction would become a fact. When it was definitely decided during the early part of 1932 that there would be no rubber restriction, operators of many estates ceased tapping altogether, and on all other estates far-reaching retrenchment measures were taken.

The increasingly difficult credit situation has focused attention upon the matter of closer cooperation among tire distributors in this market. During the first quarter several important failures gave added impetus to this movement. As a result, on April 8, 1932, at a meeting of competitors held at Batavia, it was voted that all representatives recommend to their head offices the desirability of establishing a central credit office.

Credit Conditions Bad

It is estimated that about 35 per cent of the amounts outstanding to dealers represents overdue accounts, ranging all the way from 30 days to 150 days. It appears that the position of most of the American companies is better than that of the European competitors.

During the month of April, 1932, the branch offices of three American companies at Semarang were closed, in view of the small amount of business obtainable in the mid-Java section. It was found that the business available could be handled from the Batavia and Soerabaya branch offices without much extra effort.

Imports of tires and tubes, during the first three months of the current year in comparison to previous periods, were as follows:

Imports Into the D. E. I.

(*Units*)

Year	Tires	Tubes
1929	385,418	321,232
1930	307,015	247,149
1931	230,599	167,176
1932, first 3 months.....	35,610	31,095

Higher British Duties

The British Import Duties Advisory Committee has made application for an advance in duties on rubber footwear and hair combs. The advance in footwear duties was particularly suggested by the influx of cheap Japanese rubber canvas soled tennis shoes. It is expected that favorable action will be forthcoming shortly.

Names in the News

Charles C. Goodrich

Charles C. Goodrich, son of the founder of The B. F. Goodrich Company, the first rubber chemist Goodrich employed, and a director of the corporation, died July 10 at his home in York, Maine. He was 61 years of age. He was a brother of Colonel D. M. Goodrich, chairman of the Goodrich board.

Born in New York, Mr. Goodrich came to Akron in 1895 after his graduation from Harvard. After several years' employment in the factory, he became a member of the board of directors in 1902 and was made assistant to the general superintendent and later becoming general superintendent.

Spending many summers at York, a summer resort, Mr. Goodrich finally decided to make his home there. Two years ago he won the Republican nomination for state representative and subsequently was elected to the place in the lower house.

This Spring he was selected a delegate to the Republican national convention, but ill health prevented his attendance. He last visited the Goodrich factory in Akron in November when he went to attend a meeting of the board of directors.

R. C. Penfield

Raymond C. Penfield, the first president of the Goodyear Tire and Rubber Company, died at his home on Riverside Drive, New York City, N. Y., July 10, after an illness of five weeks. Mr. Penfield's name was little known in connection with the Goodyear company, but he was its first president, serving from 1899 to 1903. He was chiefly identified with the brick machinery industry.

Born in Willoughby, Ohio, on May 31, 1860, Mr. Penfield was a son of the late James Wakefield Penfield, founder and president of the American Clay Machinery Company. He attended Wesleyan University at Middletown, Conn., where he was a member of the Eclectic Society. He was graduated in 1885.

On leaving college Mr. Penfield entered the employ of his father's company, which made machinery for clay-working, manufactured tractors and did general foundry work. The elder Penfield died early in the 90's and the son succeeded him as president. In 1914 the company was consolidated with Hatfield, Ltd., of England, under the name of the Hatfield-Penfield Steel Company, and during the World War it manufactured shells and other munitions for the Allied and American armies. Mr. Penfield retired as president about four years ago, when he also gave up his other business activities.

When the Goodyear Tire and Rubber Company was founded in 1898, Mr. Penfield became its first president, holding that post for four years. He was succeeded by his brother-in-law, Frank A. Seiberling, of Akron, Ohio, who now heads the Seiberling Rubber Company.

From 1903 until his retirement from business, Mr. Penfield was president of the American Equipment Company of Chicago, of which he was one of the founders. In the early part of this century he invented the Penfield system for mechanically handling bricks during their manufacture.

DR. HARRY N. WHITFORD, head of the crude rubber department of the Rubber Manufacturers' Association, has returned from an extensive trip to the Far East where he made a comprehensive survey of native rubber production in the interests of the Association. It is understood that he is now preparing his report on his trip, which will be in the nature of a confidential communication to only members of the Association.

JAMES D. TEW, president of B. F. Goodrich Company, represented the officials of the company at the funeral of the late C. C. Goodrich, at York Village, Me., July 12.

P. W. LITCHFIELD, president of Goodyear Tire and Rubber Company, left for a month's trip to Europe on the *Georgia*, on July 9. During his stay abroad he is expecting to visit Dr. Hugo Eckener, the *Graf Zeppelin* commander, at Friedrichshafen, Germany, and discuss several problems relative to trans-Atlantic navigation by Goodyear-Zeppelin air-craft.

L. E. JUDD, former editor of the Akron *Times-Press*, has been appointed to head the public relations department of the Goodyear Tire and Rubber Company. He succeeds HUGH ALLEN, who will now devote his entire time to Goodyear-Zeppelin Corporation activities. Mr. Judd has been prominent in civic work in Akron and has served as a director of Akron University for some time.

ERNEST I. KILCUP, secretary and acting treasurer of the Davol Rubber Company, Providence, R. I., has just been elected vice-president of the National Association of Credit Men, a national organization with more than 25,000 members. Mr. Kilcup was elected at the thirty-fourth annual convention of the association in Detroit. For many years, Mr. Kilcup has been active on important committees of the national association and of the local organization in Providence. From 1923 to 1931 he served as a director of the association, and his untiring service in this capacity earned for him the vice-presidential honor he has just received.

Lomax Littlejohn

Lomax Littlejohn, founder of the firm of Littlejohn and Company, 133 Front Street, New York City, N. Y., importers and crude rubber brokers, died July 10, at the Niantic Club, Flushing, Long Island, where he had lived for several years. He was 91 years of age.

Mr. Littlejohn came to this country from England when he was a young boy, and at sixteen entered the iron and steel business. In 1870 he organized Littlejohn and Company, which became prominent in Far Eastern trade and has been closely identified, within recent years, with the crube rubber trade.

H. E. SHEARY, service manager of the mechanical goods division, The B. F. Goodrich Company, is receiving the plaudits of his fellow workers on his ability as a fisherman. He spent his vacation at Batchawanna Bay, Lake Superior, and brought back with him, among other piscatorial prizes, a Great Northern pike weighing 16 pounds and measuring 38 inches long.

F. R. JEFFERYS, formerly secretary and salesmanager of the Aetna Rubber Company, Ashtabula, Ohio, S. HERSHBERG and V. L. MEARS, also executives in the same company, recently resigned to become officials of the newly incorporated Advance Rubber Company, 1796 East Market Street, Akron, O.

EARL S. SARGEANT, general manager of Canadian B. F. Goodrich Company, at Kitchener, Ontario, recently visited Akron for conferences at the Goodrich plant. He is a familiar figure in Akron, having been with Goodrich in that city for many years before his promotion to the post he now occupies in Canada.

WALTER E. KLIPPER, who has been office manager of the Goodyear offices in Sumatra for the past three years, sailed for San Francisco on June 30th and is scheduled to arrive in Akron early in August for a vacation of four months. He is bringing home with him two tiger cat cubs, captured in Sumatra.

MISS V. MAE GREER, cashier of the Firestone Tire and Rubber Company for the past 27 years, has been reelected president of the Business Women's Club of Akron. This will be her second term of office in the club organization.

George Kimball Burgess

Science lost a prominent figure in the death of George Kimball Burgess, director of the United States Bureau of Standards, in Washington, D. C., on July 2. Dr. Burgess was stricken at his office while he was preparing for a conference with members of his staff. While his own field of scientific research leaned toward the field of metallurgy, as head of the Bureau of Standards he directed much of the research work in rubber testing.

Dr. Burgess was born in Newton, Mass., January 4, 1874, and came from an old and distinguished New England family. He was educated in the public schools and took his B.S. degree at the Massachusetts Institute of Technology in 1896. He pursued advanced scientific courses at the University of Paris and returned to the United States to serve on the faculties of the Universities of Michigan and California.

He entered the government service in 1903 and was soon made chief of the division of metallurgy of the Bureau of Standards. He was appointed director of the Bureau by President Harding in 1923.

NEW RUBBER COMPANY ORGANIZED IN AKRON

The Advance Rubber Company, with its factory located at 1796 East Market Street, Akron, O., has been recently incorporated under the laws of the State of Ohio, and will specialize in the manufacture and sale of hard and soft rubber parts for storage batteries, automotive and electrical equipment and selected specialties. They plan to manufacture and market their products under the trade name "Adruco."

The officers of the company include F. R. Jefferys, president and salesmanager, and formerly secretary and salesmanager of the Aetna Rubber Company; S. Hershberg, treasurer and general manager; and V. L. Mears, vice-president. Both of the latter officials were also with Aetna in executive capacities.

New equipment is being installed in the factory and operations are expected to begin by August 1st.

U. S. Advertising Agents

Announcement has been made of the appointment of the Detroit advertising firm of Campbell-Ewald Company, which has directed the advertising campaign for United States Rubber Company tires for the past three years, to handle all United States Rubber Company advertising. The first scheduled campaign for a product other than tires will be on the company's rubber footwear.

Thomas Bata

Thomas Bata, the Henry Ford of Czechoslovakia and the largest manufacturer of rubber footwear in Europe, was killed July 12, when his airplane crashed immediately after leaving his private airport at Zlin en route for Switzerland.

He was born at Zlin, Moravia, then a hamlet, now called the Detroit of Czechoslovakia, in 1876, and went to work for his father, a cobbler, in his early 'teens.

Zlin, a town of 30,000 inhabitants, who are virtually all dependent upon the Bata works, looks like one big factory. About 17,600 men are employed, and the daily output is 90,000 leather shoes, 40,000 rubber shoes and 4,000 bedroom slippers.

By November 1, 1931, the number of Bata retail stores in Czechoslovakia was 1,946. Other Bata retail stores were located in Germany, Yugoslavia, Holland, Switzerland, the United States, Egypt, France, Rumania, Great Britain and Poland.

Not only by mass production but by introducing the profit-sharing system, did Bata inaugurate a new procedure in Europe. From department heads to the lowest paid workmen, all shared in the profits, receiving one-half their share in cash, while the other half was invested at 10 per cent interest.

At the same time self-government was made a real thing by the reorganization of the plant into a number of independent sections. In each of these there was a weekly rendering of accounts, so that every worker knew exactly his own share of the profits.

Goodrich Gardens Thrive

Following the recent heavy rain, great progress is being made at the B. F. Goodrich Company industrial cooperative garden near Old Portage, Akron, by former workers and part-time employees who are cultivating the 275 acre project, believed the largest of its kind in the country.

B. E. Seaver, supervisor of the gardens, has reported to A. C. Sprague that the following planting had already been done: Beans, 47 miles of rows; beets, 20 miles; cabbage, 60,000 plants with 200,000 plants being grown from seed; carrots, six miles; sweet corn, 50 miles; field corn for corn meal, 75 miles; kale, 75,000 plants; lettuce, two miles; mustard one mile; onions, seven miles; peas, nine miles.

Peppers, five miles; potatoes, 250 miles; radishes, one and a half miles; spinach, one and a half miles; summer squash, 1000 hills; Swiss chard, two miles; tomatoes, 25 miles; with 25 more miles to be planted from plants growing from seed; and turnips, one and a half miles, with many more miles to be planted later for winter usage.

Hundreds of bushels of navy beans for winter use are expected from the planting. More plants of vegetables are being made at the rate of several miles a day. Several small flower gardens have been cultivated at various points around the 275 acres, lending a decorative touch to the project.

Expands Activities

Binney and Smith and Ashby, Ltd., 17, Lawrence Pountney Lane, London, have announced the creation of a new department in their organization to handle all grades of crude rubber and transact spot or forward delivery sales.

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

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PRACTICAL MAN, experienced in Factory and Laboratory, desires change. Experienced in rubber latex, synthetic latex, resins, colloids, emulsions, compounding, organic chemistry. Desires position where results are appreciated. Age 38. Understand men and psychology. What have you? Address Box 672, THE RUBBER AGE.

ORGANIC CHEMIST, Rubber Technologist, experience in departmental organization and management. Versatile. Age 30. Married. Desire connection with growing concern. Opportunity of first consideration. Address Box 671, THE RUBBER AGE.

HELP WANTED

CALIFORNIA concern is looking for an experienced superintendent and foreman for the manufacture of Hard Rubber Battery Boxes. Furnish full references to Mr. O. Crispens, 420 Lexington Ave., New York City.

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***Use* the Classified Page**
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Consulting Rubber Technologist
PRACTICAL
Twenty years' experience with the largest and most successful companies in the country
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Special facilities for abrasion and quick age tests
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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JULY 20, 1932

Crude Rubber

THE crude rubber market showed a continued steadiness in tone during the last two weeks, fluctuating less than ¼ of a cent per pound. No special change was registered in the statistical position and as a consequence there can be expected that no change in price levels will occur in the near future, in spite of the fact that there is increasing sentiment in trade circles that the gradual decline in European stocks, which has taken place over the last three months, may have a bullish effect in the New York market if sustained for another few months. Department of Commerce reports indicating that consumption was overtaking production have put some hope in the trading side of the industry.

Prices as of July 19, as recorded on the outside New York Market, were as follows:

Plantations—

Ribbed Smoked Sheets—			
Spot-July		@	.02⅞
Aug.-Sept.		@	.02⅞
First Latex, crepe spot	—	@	.03⅜
Amber Crepe, No. 2	—	@	.02¾
Amber Crepe, No. 3	—	@	.02¾
Amber Crepe, No. 4	—	@	.02⅝
Brown Crepe, Clean thin	—	@	.02⅝
Brown Crepe, rolled	.02¼	@	.02⅜

Latex—

Liquid Latex, per gal.	.70	@	.75

Paras—

Up-river, fine	—	@	.05½
Up-river, coarse	Nominal		
Acre, Bolivian, fine	—	@	.06
Caucho Ball, Upper	—	@	.03

Centrals—

Central scrap	.04	@	—
Esmeraldas	.04	@	—

Balata—

Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

July	1 15/16	@	1 29/32d
Oct.-Nov.	1 31/32	@	2d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot	——	@	1⅝d

Reclaimed Rubber

There has been no change in price levels for the more familiar standard grades of reclaimed rubber since last reported. The market remains quiet and production has been curtailed in line with the restricted demand. In the face of the low prices of crude rubber the reclaimers are selling on the basis of quality and uniformity of product. Late quotations follow:

High Tensile

High Tensile Red	lb.	.04¾	@	.05
Super-Reclaim Black	lb.	.05	@	.05¼

Shoe

Washed	lb.	.05½	@	.05¾

Tube

No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.04½	@	.04¾

Tires

Black	lb.	.03¾	@	.04
Black, selected tires	lb.	.04	@	.04¼
Dark Gray		.05	@	.05¼
Light Gray	lb.	.05½	@	.06
White	lb.	.05½	@	.05¾
Truck, Heavy Gravity	lb.	.05	@	.05¼
Truck, Light Gravity	lb.	.05¼	@	.05½

Miscellaneous

Mechanical blends	lb.	.03	@	.03½

Scrap Rubber

Little activity is reported in scrap rubber circles. With reclaiming at a low ebb and scrap prices too low to be attractive to junkmen the industry is in a serious situation. New reductions in freight rates in the Central States roads may improve matters but it is generally conceded that profits cannot be made with scrap at present levels. Inner tubes dropped another ¼ of a cent during the fortnight. Latest quotations follow:

(Prices to Consumer)

Auto tire peelings	ton	17.00	@	18.00
Mixed auto	ton	6.50	@	8.00
Bicycle tires	ton	5.00	@	6.00
Clean solid truck tires	ton	20.00	@	22.00
Boots and shoes	ton	15.00	@	17.50
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.02¼	@	.02¼
Inner tubes, No. 2, compounded	lb.	.01	@	.01¼
Inner Tubes, Red	lb.	.01⅝	@	.01¾
Air Brake Hose	ton	8.00	@	8.50
Rubber Hose	ton	6.00	@	8.00

Cotton

AFTER a spurt above the six cent level cotton has again declined on the strength of favorable weather reports and higher crop estimates. Farm Board agencies and cooperatives are reported to be selling at below the market and there is very little in the situation which tends toward the bullish side. Exports are being maintained, however, and mill forwardings are expected, particularly at the present attractive low price scale. High, Low and closing prices on the New York Cotton Exchange as of June 20, were as follows:

	July 20			July 5
	High	Low	Close	Close
July	5.74	5.62	5.65	5.77
Oct.	——	——	5.77	5.91
Dec.	6.07	5.92	5.92	6.05

Tire Fabrics

No changes were registered in the standard constructions of tire factories during the past fortnight. Little buying interest was evident and takings were light. Late prices follow:

(Prices Net at the Mill)

CORD

Peeler, carded, 23/4/3	lb.	.21¾	@	.22
Peeler, carded 23/5/3	lb.	.20¾	@	.21
Peeler, carded, 13/3/3	lb.	.17¾	@	.18
Peeler, carded, 15/3/3	lb.	.18¾	@	.19
Egyptian, carded, 23/5/3	lb.	.31¾	@	.32
Egyptian, combed, 23/5/3	lb.	.36¾	@	.37

CHAFERS

Carded, American, 8 oz.	lb.	.16½	@	.17
Carded, American, 10 oz.	lb.	.16½	@	.17
Carded, American, 12 oz.	lb.	.16½	@	.17
Carded, American, 14 oz.	lb.	.16	@	.16½

LENO BREAKER

Carded, American, 8¼ oz.	lb.	.17	@	.20
Carded, American, 10¼ oz.	lb.	.17	@	.20

SQUARE WOVEN

Carded, American, 17¼ oz. 28-11 ply	lb.	.20½	@	.21½
Carded, American, 17¼ oz. 10 ply	lb.	.16	@	.16½

Sheetings

The market for sheetings remains extremely dull with a minimum of buying interest. No changes in prices were reported on sheetings generally used in the industry. Late prices follow:

40 inch, 2.50 yard	yd.	.04½	@	.04⅝
40 inch, 2.85 yard	yd.	.03⅞	@	.04
40 inch, 3.15 yard	yd.	—	@	.05
40 inch, 3.60 yard	yd.	—	@	.04
40 inch, 3.75 yard	yd.	.03½	@	.03⅝
40 inch, 4.25 yard	yd.	.03	@	.03⅛

Ducks

There was nothing new to report in the market for duck materials during the last two weeks. No changes in prices were registered. Last quotations follow:

Enameling	lb.	.16¾	@	.17¾
Belting and Hose	lb.	.18	@	.18½
Single filling	lb.	.07	@	.07¼
Double filling	lb.	—	@	.09¼

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons*

FROM JULY 6 TO JULY 19, 1932

Date		Spot	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Sales
July	6	2.63	2.61	2.65	2.70	2.76	2.82	2.88	2.94	2.99	3.05	3.11	——	——	27
	7	2.70	2.66	2.70	2.75	2.81	2.87	2.93	2.99	3.04	3.10	3.16	——	——	48
	8	2.70	2.68	2.72	2.77	2.83	2.89	2.95	3.00	3.05	3.10	3.16	——	——	12
	11	2.72	2.70	2.76	2.83	2.88	2.93	2.98	3.04	3.09	3.14	3.20	——	——	33
	12	2.72	2.72	2.76	2.81	2.86	2.91	2.97	3.03	3.09	3.15	3.21	——	——	32
	13	2.74	2.73	2.77	2.82	2.88	2.98	2.99	3.05	3.10	3.15	3.21	——	——	31
	14	2.74	2.72	2.75	2.79	2.85	2.91	2.98	3.02	3.06	3.10	3.16	——	——	30
	15	2.81	2.78	2.80	2.82	2.87	2.92	2.98	3.04	3.10	3.15	3.20	——	——	22
	18	2.81	2.80	2.82	2.85	2.90	2.95	3.01	3.07	3.12	3.18	3.23	——	——	55
	19	2.80	2.75	2.77	2.82	2.88	2.93	2.98	3.04	3.10	3.16	3.20	——	——	10

*This contract will be superseded by "No. 1 B Standard" on April 1, 1933.

CHEMICALS

SOME activity has been noted by chemical houses in orders from the industry during the past fortnight but the buying has been for the most part for immediate requirements. There has been no changes announced in the price schedules covering the general run of rubber chemicals. Stocks of carbon black remain high and production has been curtailed in some areas. The latest quotations follow:

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.89 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	2.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.30 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.53 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined,			
light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.25 @	.26
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05¼@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony			
crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Whites			
Lithopone, Albalith	lb.	.04½@	.04¾
Lithopone, Azolith	lb.	.04½@	.04¾
Titanium oxide	lb.	.21 @	—
Titanox B	lb.	.06½@	.07
Titanox C	lb.	.06½@	.07
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾@	.06
ZZ (leaded)	lb.	.05½@	.05¾
Horsehead Lead Free Brand:			
Selected	lb.	.05¾@	.06
Special	lb.	.05¾@	.06
XX Red	lb.	.05¾@	.06
XX	lb.	.05¾@	.06
XX Green	lb.	.05¾@	.06
Leaded Brand, Standard	lb.	.05½@	.05¾
Sterling	lb.	.05½@	.05¾
Superior	lb.	.05½@	.05¾
Lehigh	lb.	.05¼@	.05½
U. S. P., bbls.	lb.	— @	.12¾
Kadox, black label	lb.	.09¾@	.09⅞
Blue label	lb.	.08¾@	.08⅞
Red label	lb.	.07¼@	.07½
Cryptone, No. 19	lb.	.06½@	.06¾
Cryptone CB, No. 21	lb.	.06½@	.06¾
XX Zinc Sulphide, bbls.	lb.	— @	.13
St. Joe, black label	lb.	.05¾@	.06
green label	lb.	.05¾@	.06
red label	lb.	.05¾@	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾@	.06
Anaconda, selected lead free	lb.	.06¼@	.06½
Florence White seal, bbls.	lb.	— @	.10⅞
Green seal	lb.	.09¾@	.09⅞
Red seal	lb.	.08¾@	.08⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, domestic	lb.	.01⅝@	.02

BLACKS

Arrow "Aerfloted"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Arrow "Aerfloted" Specification, c.l. f.o.b. wks., bags	lb.	.03 @	—
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.02¾@	.07
uncompressed	lb.	.02¾@	.07
"Certified," Cabot			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Disperso" f.o.b. La.	lb.	.028 @	.071
f.o.b. Texas	lb.	.02¾@	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.03 @	—
"Fumonex"	lb.	.02½@	.06
"Gastex"	lb.	.02½@	.06
Lampblack	lb.	.07 @	.10
"Micronex"			
c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Supreme"	lb.	.02¾@	—
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United, "Dixie" and "Kosmos"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Velvetex"	lb.	.02 @	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.25 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	33.00 @	—
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	6.50 @	8.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Kalite No. 1	ton	30.00 @	55.00
Kalite No. 3	ton	40.00 @	65.00
Magnesia, carbonate	lb.	.08¾@	.11
Mica	lb.	.04½@	—
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	1.70
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09¼@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	28.00 @	48.00
Pioneer, MR, solid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crude		— @	.04¼
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04½@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.07½@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt.	bbl.	7.00 @	—
Rosin, grade K, 280 lb.	bbl.	— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured,			
No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.87½
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03¾@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Aromatics- Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

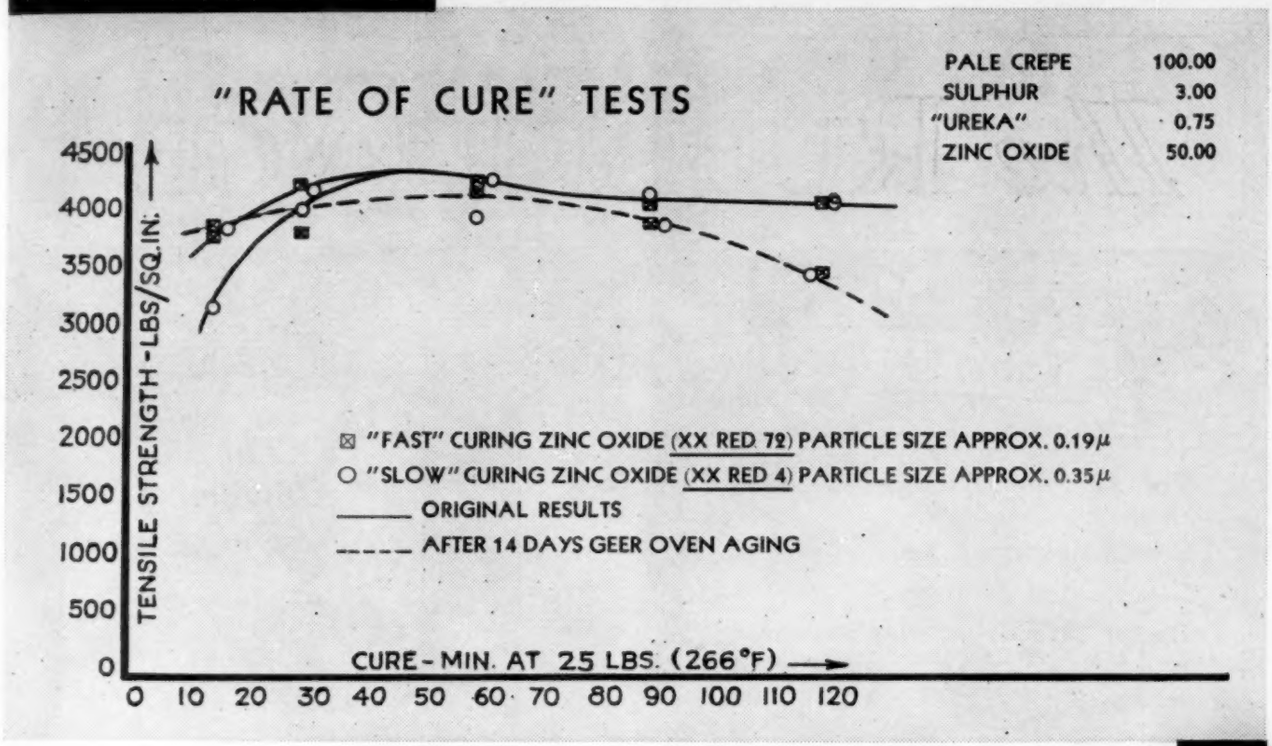
SUBSTITUTES

Black	lb.	.07 @	.09
White	lb.	.08 @	.14
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour,			
Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		

No. 6 of a series of advertisements showing a comparison of "fast" and "slow" curing zinc oxides with typical accelerators.



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